THE WORKSTATION NEWSWEEKLY

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June 29, 1987

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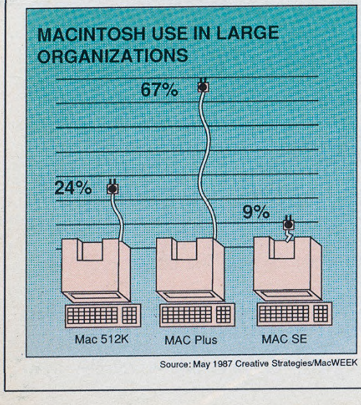


Source: May 1987 Creative Strategies/MacWEEK

Apple pursues CAD; exhibits at A/E/C

BY STUART SILVERSTONE
Special to MacWEEK

WASHINGTON — The inaugural participation by Apple at a CAD expo attended by almost 30,000 construction professionals highlighted the opening of last week's A/E/C Systems '87 show here.

Apple's presence was as conspicuous as its seven-year absence from the construction industry's premier computer show. Observers and Apple officials interpreted the company's strong showing as a turning point in the personal computer desktop-engineering market; more than 200 architects attended a two-day Macintosh forum held during the show.

Conference Director George Borkovich said, "There is finally an alternative to MS-DOS CAD in the low-cost arena."

The turnaround in Apple's participation parallels an emerging trend in computer shows toward vertical markets. In previous years, Apple explained its absence from the A/E/C

See A/E/C, Page 24

Workstation publisher headed for Macintosh II

BY CLAIR WHITMER
and ABIGAIL CHRISTOPHER
MacWEEK Staff

CAMBRIDGE, Mass. — Interleaf Inc., long a major player in workstation electronic publishing, is developing a version of its software system for the Macintosh II, according to sources within and outside the company.

"Several major corporations, including Boeing, have been asking Interleaf to port its software to the Macintosh II for more than a year," says Rick Young, senior analyst at DataQuest of San Jose, Calif.

"I know that Interleaf has had the 'requirement' from a number of corporations for a long time. The Macintosh II is a cheaper platform than the Sun 3/50. The Sun workstations include the added costs of networking and UNIX. AppleTalk is less expensive. In addition, companies such as Boeing like the Macintosh operating system," he says.

"I don't feel comfortable projecting price points, but I don't think that Interleaf can price the Mac II port above $2,000. Consider the price of the platform."

Young says he expects to see the Mac II version of Interleaf's software by the end of this year.

Interleaf has already ported its software to

See INTERLEAF, Page 24

Apple's road show leaves some behind

Vendors complain of favoritism

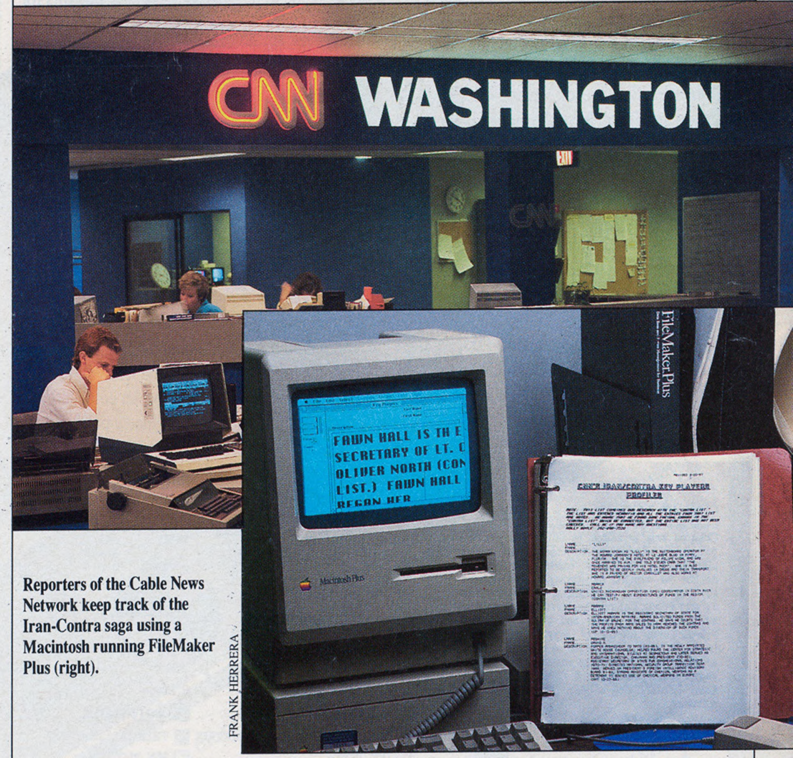
BY ELINOR CRAIG
MacWEEK Staff

Major hardware and software companies were excluded from the current Apple Business Forums, according to sources close to Apple Computer Inc. One company independently decided to forsake the national series of promotional conferences because of what it perceives to be Apple's failure to develop a solid business-marketing plan.

At its second annual business forum, Apple, with more than 50 software and hardware developers, is demonstrating its business solutions in five different areas: desktop publishing, productivity, engineering and scientific, business management, and desktop communications. Seminars are conducted in each of these areas, including market overviews of the Macintosh in business. The forum will travel to 16 locations nationwide.

One major developer not represented is Microtek Lab Inc. It has the largest market share of the desktop-scanner marketplace, according to research houses IDC and Dataquest, with an installed base of approximately 15,000 units in the desktop-publishing market. Microtek was invited last year but is conspicu-

See FORUM, Page 24



Reporters of the Cable News Network keep track of the Iran-Contra saga using a Macintosh running FileMaker Plus (right).

FRANK HERRERA

FileMaker tracks Contra hearings for Cable News Network

BY STUART SILVERSTONE
Special to MacWEEK

WASHINGTON — While the televised Iran-Contra hearings have made Lt. Col. Oliver North a household name, keeping track of the many obscure names, dates and financial transactions associated with the unfolding investigation is a task the Cable News Network (CNN) has assigned since last December to FileMaker Plus on a Macintosh. A chronology of relevant diplomatic and intelligence events dating back to 1969 and biographies of more than 750 key players in the drama are part of CNN's fast-growing database.

Additional facts to be entered into FileMaker are gleaned daily from revelations at the congres-

See CNN, Page 24

National Semi to ship faster memory module

BY JIRI WEISS
MacWEEK Staff

SANTA CLARA, Calif. — National Semiconductor Corp. will ship next month a memory expansion module for the Macintosh II that permits as much as 16 Mbytes of RAM in a single expansion slot.

Based on 100-nanosecond, 1-Mbyte dynamic RAMs, the NS8/16 consists of an 8-Mbyte motherboard and an 8-Mbyte daughterboard that occupy a single NuBus slot. The board can be purchased in 4-, 8-,12-, or 16-Mbyte configurations, at $400 per megabyte.

The advantage of NS8/16 is that it speeds switching between applications, says Geof Weaver, NSC's product marketing manager. "It's not quite as fast as RAM on the motherboard, but several times faster than a hard disk."

The board is intended for servers and high-end applications that use a great deal of memory such as graphics and CAD/CAM.

The NS8/16 will be the only memory module now available that will work with both the Macintosh's own operating system and AU/X, Apple's UNIX, according to Weaver.

Users can install one or more NS8/16 modules themselves without having to set any jumper swithces, he says.

The module is one of a family of Mac II products that National plans to introduce this year, Weaver says. The NS8/16 is the first PC product for the semiconductor maker. The company has been marketing add-on memory systems for Digital Equipment Corp. National Semiconductor became an Apple developer in December 1986. ■

Colorocs develops color laser-printer engine

BY ABIGAIL CHRISTOPHER
MacWEEK Staff

NORCROSS, Ga. — Colorocs Corp. has developed the first color laser-printer engine that provides a resolution of 300 dpi and a printing speed of 10 pages per minute — 42 pages per minute in black-and-white mode.

According to Naomi Luft, analyst at Datek Information Services of Newtonville, Mass., "Canon and Ricoh have developed color copiers that use optical imaging and electrophotography, but they have yet to announce color laser printers.

"Laser beam technology, either helium neon or semiconductor diode, has been added to electrophotographic color-copier technology to develop Colorocs printer engine," said Bob Girola, of QMS of Mobile, Ala.

QMS owns 6 percent of Colorocs, having signed a printer development contract with the company in 1985. QMS is the only OEM that Colorocs has announced to date.

Mitsubishi International, which owns 6 percent of Colorocs, recommended that Sharp Inc. manufacture the Colorocs engine in Japan.

"As companies such as Canon and Ricoh design similar engines, prices will drop. It will be feasible to put together a printer like this for about $10,000," says Scott Smith, Mitsubishi marketing manager.

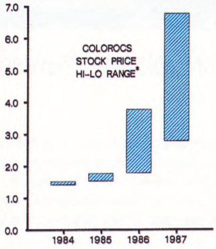
Greg Porell, CAP International color hardcopy analyst, says, "While companies such as Toshiba have demonstrated color laser printers already, there is a big difference in Colorocs' technology.

"The Toshiba Twin Color printer (demonstrated at COMDEX/Fall '86) only provides a second color." Colorocs provides four: yellow, magenta, cyan and black.

Canon and Ricoh have shown four-color laser printers in Japan for the past two years and would not discuss plans to bring color laser-printer technology to the United States. Fujitisu is reportedly working on color laser technolgy but will not introduce a product in the near future, a company spokesman said. ■

COMPANY PROFILE

Colorocs was organized in July 1982 for the purpose of designing, developing and selling plain-paper full color copiers and printing devices to exploit the general trend toward the use of color in business communications. To this extent, Colorocs has developed prototypes of a Full Color Copier and Full Color Laser Printer, both capable of copying or printing in full color and true black as opposed to black or single color only. The inside covers of this report were printed on a Colorocs Full Color Laser Printer using a QMS, Inc. controller and software.



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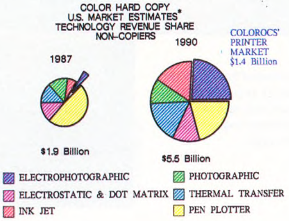

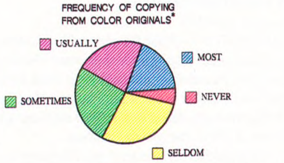

*SOURCE: CAP INTERNATIONAL, INC., 1986

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LATE NEWS

Nutmeg buys desktop-publishing division from Gestetner

NEW CANAAN, Conn. — Nutmeg Systems Inc., an authorized Apple VAR specializing in desktop publishing, has acquired the national desktop-publishing division of Gestetner Office Systems.

Gestetner of Yonkers, N.Y., has been the leading VAR of Apple Mac systems targeted at desktop-publishing applications. The value of the contract was not disclosed.

Nutmeg will immediately assume service contracts for current Gestetner customers. The company also will take the existing inventory of desktop-publishing systems and manuals, according to James Ackerly, Nutmeg president.

Ann Arbor affirms intention to keep and market FullWrite

LOS ANGELES — In spite of rumors about the sale of FullWrite Professional, the sophisticated word processor and page-layout program, Ann Arbor Software's current intent is to be independent, according to Philip Lipetz, company president.

"However," says Lipetz, "Ann Arbor has been approached by four of the 10 largest microcomputer/software houses about possible mergers.

"Ann Arbor is totally committed to introducing FullWrite Professional at the [Macworld Expo in Boston]," says Lipetz. The company has finished its second round of venture capital financing and is in final beta testing of the program, he says.

Target announces long-awaited release date for Scoop

MIAMI — After a series of delays, Target Software Inc. will officially enter the desktop-publishing marketplace July 15 with Scoop, "a second-generation page-creation and layout" program, says Richard Palumbo, Target's president.

"The delays have nothing to do with any problems," Palumbo says. "The title is basically sound. We are now just refining the documentation."

According to one of the beta testers, however, "Scoop has gone through dramatic changes from what it was originally."

The program has been owned by two separate companies and changed names more than once.

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MWK6

Neuron releases object-oriented system

BY JIRI WEISS
MacWEEK Staff

PALO ALTO, Calif. — Neuron Data will release an expert system for the Macintosh II at the annual meeting of the American Association for Artificial Intelligence in July.

The $5,000 program, called Nexpert Object, is a more sophisticated version of a program that has been available on the Macintosh since December 1985. The program is finding applications in training, medicine, banking and the tracking of satellites.

Nexpert Object is an expert-system shell written in C that can be programmed into an application and distributed to multiple users running a broad range of computers, including Macs, VAXes, IBM ATs and PS/2s, the company says. Users can distribute copies of completed run-time applications for $800.

Nexpert Object's open architecture allows it to incorporate other programs or routines. It interfaces with popular spreadsheets like Microsoft Corp.'s Excel and Lotus 1-2-3 and databases such as Oracle Corp.'s Oracle and Rdb, a DEC database, the company says.

The new version is "object-oriented." Users can create and describe objects and relationships between them in addition to the if/then rules that form the basis of the system. The ability to define objects, their properties and their classes gives the program additional depth and lets it handle more complex problems, says Neuron Data President Patrick Perez.

Another advantage of the object-oriented approach is that the total number of rules and information that must be entered is reduced, he says. The properties of classes are automatically inherited by objects when they are assigned to a particular class. Once a user tells Nexpert that cars have four wheels, a body and an engine, for example, he does not have to re-enter these properties for a Porsche.

As a user generates the knowledge base, a graphic representation of the objects and relationships he is creating grows in the form of a complex network on the screen.

The network resembles a tree, but it is not a tree in the artificial intelligence sense of the word. "The network is completely open," Perez says. "Any node can be linked to an unlimited number of others."

By making a selection from a pull-down menu, users can trace their reasoning in either direction, finding out how they arrived at a point or what implication a rule has on the outcome. This graphic interface is an advantage over other expert systems, Perez says.

Debugging tools allow the expert to run the program at any time to check and modify the graph. Colors highlight which propositions are relevant to what a user is currently working on as well as which have become true and which false.

The graphic representation means the expert creating the knowledge database can enter his knowledge directly into the program without having to go through a programmer.

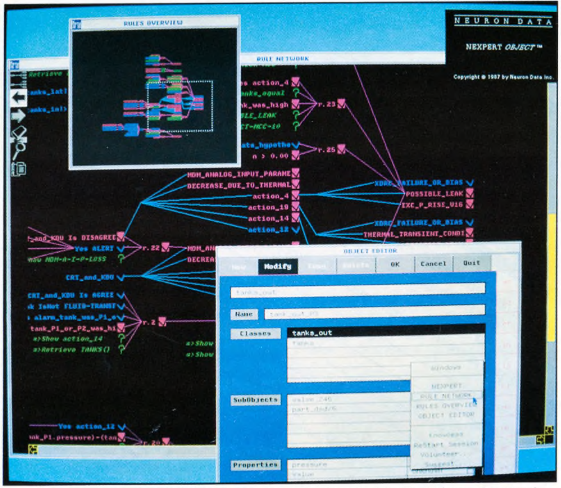
The system can be learned by anyone, even those without any knowledge about artificial intelligence, Perez says.

Despite the relative ease with which applications can be developed, Nexpert Object is not intended for the mass market, he says.

At Neuron Data, Nexpert Object is maintained on a MicroVAX II, but it will run on Macintoshes from the Plus on up. Only workstations on the level of the MicroVAX II or Mac II, however, can take advantage of the program's color and multitasking.

Nexpert Object will be available on both the Macintosh operating system and AU/X with X-Windows. ■

COURTESY NEURON DATA



A graphic representation of objects and relationships the user creates grows in the form of a complex network.

SNAPSHOTS

Acorn offers two high-end, low-cost computers

British-based Acorn Computers recently announced two high-end RISC computers, the Archimedes 310 and the Archimedes 440, both priced at levels that seem like steals by U.S. standards.

The Archimedes 310 runs on the proprietary 32-bit Acorn RISC chip, carries 1 Mbyte of main memory, a 640-by-256-pixel color monitor and sells for about $1,670.

The Archimedes 440 sells for about $4,000. It runs at 4 million instructions per second, includes a 20-Mbyte hard disk, 4 Mbytes of main memory, a mouse, a numeric keyboard and a 640-by-512-pixel color monitor.

Because of its proprietary nature, the machine will not run under a UNIX operating system. Without any compatible software, the machine has limited attraction in the U.S., despite the low price.

But Acorn may be persuaded by a request from the British government that all systems offered for government development projects be compatible with the Common Applications Environment. This implies compatibility with UNIX, says a source close to Acorn.

PBI software helps organize filing systems

FOSTER CITY, Calif. — Mac users who like to put files in folders and those folders within folders and those folders within folders, now can have a finder Desk Accessory from PBI Software designed for their filing system.

Priced at $39.95, the HFS (Hierarchical File System) Locator Plus 2.0 allows users to conduct file searches by name, partial name, date or file type, including the type of application.

Once found, all the file information is displayed, such as its icon, HFS location, size and file type. The file can then be moved, renamed, deleted, copied or launched. Locator also can be used to create new folders or catalogs of the disk. The finder can search over an AppleTalk network. Locator also is a backup utility, operating either manually or automatically.

Mac ware on CompuServe's Software Exchange

Glue, the recently released program from Solutions Inc. of Montpelier, Vt., will be the first Macintosh program available for purchase on CompuServe's Software Exchange (SOFTEX). Glue allows a user to display or print a file from an application he does not have.

Columbus, Ohio-based CompuServe will not be selling the retail version of Glue but will sell the two parts of the program separately. The Viewer, which can read, copy and paste Glue files, will sell for $19.95. The ImageSaver, for the creation of a Glue document, is priced at $34.95. A Desk-Accessory version of Viewer will sell for $24.95.

CompuServe subscribers who want to buy any part of the program will be charged through their monthly CompuServe bill.

Disk drive for Mac able to read IBM floppies

FREMONT, Calif. — A 10-Mbyte floppy-disk drive for the Macintosh capable of reading IBM floppy disks is slated to ship July 15 from Peripheral Land Inc.

The drive is intended to combine the capacity and reliability of hard disk with the convenience of floppies. The new line will include two products: the Infinity and the Infinity II. Both use a 5.25-inch high-density floppy for storing 10 Mbytes of data.

The Infinity II uses a hard-cover cartridge, similar to generic Macintosh floppies, while the Infinity is a soft-cover floppy, such as those used for IBM machines.

The Infinity can read 1.2 Mbytes of data from an IBM AT MS-DOS file and 360 Kbytes from an IBM XT floppy disk through the use of file-conversion software included with the drive package.

As part of a promotional drive, both drives are priced at $1,095 until Sept. 30, when the price for the Infinity will be raised to $1,295. The price of the Infinity II will remain the same. During the promotion, the drives will include one blank disk. Disks also are available from the company. Soft floppies cost $18 each and hard-cover disks cost $59 each.

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Paragon's text editor has built-in macros

DEL MAR, Calif. — Paragon Concepts has recently started shipping a text editor designed to minimize repetitive tasks in text handling.

Using the program's macros, users can turn any sequence of commands into a menu selection or a key stroke.

"QUED/M is useful for any task for cleaning up or reformatting text," says Jerzy Lewak, company president.

The $89 QUED/M can be used for repetitive tasks such as stripping out carriage returns, rearranging and sorting a file, and keeping an appointment book.

To set up a macro, users turn on a record function that will store the sequence of steps they go through, or they can type in a list of commands, Lewak says. There are more than 50 macros included with the program, he says.

To enable users to manipulate text more easily, QUED/M uses metacharacters similar to those available to UNIX users, Lewak says. The metacharacter "$," for example, means end of the line and ":d" means a digit.

For editing PostScript files, the program displays data in alphanumeric and text in ASCII form. QUED/M's Search-and-Replace command will find key words in any file on a disk, even if it has not been opened.

An Undo command lets users of QUED/M abort as many commands as they want. ■

Deneba ends relationship with Target

BY ABIGAIL CHRISTOPHER
MacWEEK Staff

MIAMI, Fla. — Deneba Software Co. — developer of MacLightning/Mentor, Memorandum, Word 3.0 Thesarus and Voila —has teninated its 18-month-old marketing agreement with Target Software.

The termination leaves Target with only one product in its line, Scoop, an unreleased desktop-publishing program which has drawn attention during the past six months. Target acquired rights to Scoop last winter from MacAmerica. The software is still under development, although its new release date is July 15 (see story Page 2). Deneba's products were marketed under a separate agreement.

"We do not believe that we will have access to the list of registered users because Target is very possessive of it, even though it's our software," Deneba President Manny Menendez reports.

"We have no way of contacting the users who have our software.

"We are trying hard to let everyone know what the situation is. We're urging registered users to reregister in order to be eligible for upgrades and tech support, which we will provide," he says.

"As of May 28, we have been working without a contract. We are working on a full lineup of our products under our own label. Target has agreed not to sell our software. We are going to have to change the names of all of our products," says Menendez.

"There is a remote possibility that one or two of our packages may be marketed by Target, but chances are that's not going to happen," Menendez says.

Menendez is contacting all the dealers and distributors who had contracts with Target. Deneba will develop fresh agreements with all sales channels in addition to designing new advertising to push the renamed products.

Menendez would not comment about the reasons for the termination of the marketing agreement.

"Scoop was not the reason we did not renew the marketing agreement," he says.

Based on an informal review of computer publications, Target has spent almost of $50,000 a month on advertising and marketing for Deneba's products as well as for its own Scoop software.

The four-color four-page inserts that Target has been running in many popular trade journals cost approximately $5,000 per page each month.

Two beta testers who received new copies of the Scoop software three weeks ago agree "the software is only about 30 percent complete. It is very buggy." ■

JDL dot-matrix plotter/printer works faster than pen plotters

BY MARY FRIENDLAND
Special to MacWEEK

WESTLAKE VILLAGE, Calif. — Engineers will be able to do all their work from their desktops with the newest compact plotter/printer from JDL Corp.

"Large format from a small package" is how Bryan Doherty, JDL's vice president, describes the dot-matrix machine, which he claims is up to four times faster than a pen plotter. Called the JDL-850/GL+, the $3,845 product is slated for shipment July 1.

According to Doherty, built-in compatibility with the Hewlett-Packard graphics language (HP-GL), a drafting industry standard, ensures compatibility with major engineering and design software. The GL+ will run any Mac CAD application that supports HP 7475A (HP-GL), HP 755A, 7580B and 7585B plotters.

"The GL+ emulates Hewlett-Packard pen plotters, but generates output 25 percent to 400 percent faster than a pen plotter. It is the only dot matrix plotter that handles C-size paper (18 inches by 24 inches, a popular engineering and drafting size)," Doherty says. The new printer is capable of 14-color plots. The 17-inch-by-25-inch device fits on a desktop.

Pen plotters such as H-P's provide high quality output but are large and extremely slow. The least expensive large-format H-P pen plotter, the Deskpro, retails for $5,400.

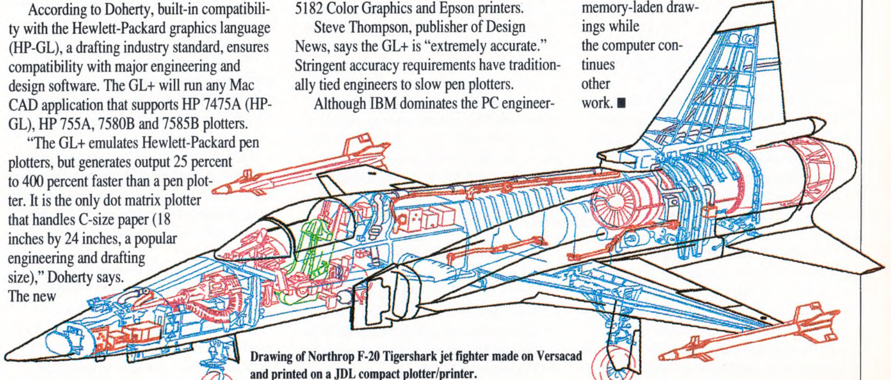
Project management chores, such as word processing, spreadsheets and presentation documents, consume about 80 percent of an engineer's workday, according to an H-P survey. For those tasks the GL+ prints letter and draft-quality text, compatible with Diablo 630, IBM 5182 Color Graphics and Epson printers.

Steve Thompson, publisher of Design News, says the GL+ is "extremely accurate." Stringent accuracy requirements have traditionally tied engineers to slow pen plotters.

Although IBM dominates the PC engineering market, Doherty predicts the Mac II will make his product even more viable. Like Macs, the GL+ has a 6800 processor. Processing from a Macintosh will be faster than from a PC.

Susan Stanley co-owns Computershop, a manufacturer of plotter drivers for Macintoshes, in Greensboro, N.C. Stanley tested the GL+ for H-P compatibility. A three-color architectural rendering plotted with "very acceptable resolution" after the first test, Stanley says.

Stanley praised the machine's 1-Mbyte buffer, which holds entire memory-laden drawings while the computer continues other work. ■



Drawing of Northrop F-20 Tigershark jet fighter made on Versacad and printed on a JDL compact plotter/printer.

Monitors made for IBM run with Mac II

BY KRISTINA B. SULLIVAN
Special To MacWeek

The bounty of new monitors that will run with the Macintosh II include several high-resolution "variable-frequency" displays originally developed for IBM's PS/2 line of computers.

Variable-frequency monitors are designed to adjust to a range of graphics resolutions, typically from as low as 300 by 200 pixels to as high as 1,024 by 768 pixels. For this reason, they can be used with many different graphics boards, including the Macintosh CGA.

NEC Home Electronics of Wood Dale, Ill.; Quadram Corp. of Norcross, Ga.; and Princeton Graphic Systems of Princeton, N.J., are among the firms preparing to release variable-frequency monitors for the IBM PC and PS/2 lines that, with adapter cables, also will run on the Macintosh II. NEC is adding two high-end monitors to its MultiSync line and will offer an adapter cable for less than $25 in the next two months that will allow the original MultiSync to be used with the Mac II.

"The Mac II concept was not known about until after MultiSync was designed," says Richard Atanus. "We kind of got lucky. Since it can be used with the Mac II, we are just taking advantage of that fact and just getting our sales up."

The monitor vendors can expand into the Mac market because of Apple Computer Inc.'s new "open-door" policy with the Mac II. "There are abundant opportunities to add enhanced video performance into that system," says Dave Berger, computer products marketing director for North American Philips in Knoxville, Tenn.

Like monitor manufacturers, IBM PC graphics-board designers will be quick to seize the market opportunity to provide boards for the Macintosh. North American Philips has not been able to obtain a model of the scarce Mac II to test its Magnavox Multimode variable-frequency monitor on the machine. The Multimode supports a horizontal scan rate of 34 kHz while the Macintosh features a rate of 35 kHz. This difference must be tested before North American Philips will claim Macintosh II compatibility, says Berger.

"Any board and display maker who has a reasonable presence in the [PC] market and intends to have a presence should be looking at the [Macintosh] market," he says.

High-resolution, large-screen monitors for engineering workstations is where the opportunity lies, he says. "As opposed to IBM PCs, in the Mac II world, you see a large demand for 19-inch color displays," says Berger.

Although there is some demand for this on PCs, the "speed and power of the 68020 processor in Mac II enables it to draw screens and give users a level of graphic performance that is more difficult to achieve on a PC," he says.

Variable-frequency monitors currently are limited by the 640-by-480-pixel resolution of the Macintosh II video card. When higher resolution graphics boards become available, however, the variable frequency boards also will support the more advanced features. NEC's new $1,399 MultiSync Plus, for example, features a 15-inch diagonal screen capable of supporting up to 960 by 720 pixels. The upcoming 20-inch MultiSync XL will sell for $3,199 and support a resolution of 1,024 by 768 pixels. Both color displays are due out next month.

Also to be released this summer is Ultrasync from Princeton Graphic Systems. Ultrasync is a 12-inch color monitor with a maximum resolution of of 770 by 570 pixels that will sell for less than $800. In addition, Princeton will ship MAX-15, a monochrome monitor with a 15-inch screen in October for $280.

Quadram's entry to the PS/2 market that also will run with the Mac II is the PS/Q Display, scheduled to be shipped in August. The $795-monitor will feature a 13-inch display with a resolution of up to 800 by 600 pixels.

COURTESY MULTISYNC

NEC's MultiSync XL 20-inch monitor has variable frequency and supports resolution of 1,024 by 768 pixels.

Some combination monitor/graphics board products that support high-quality displays have already been announced for the Macintosh. SuperMac Technology of Mountain View, Calif., for example, currently is shipping its 19-inch, $2,995 Spectrum monitor as well as a $1,550 video card. Together, the products provide Macintosh II users with 256 colors in a 1,024-by-768-pixel resolution of 70 dpi.

At the moment, SuperMac's video card drives only the Spectrum monitor, but it is being "addressed to work with others like the NEC Multisync," says Jonathan Gibson, an application engineer for SuperMac.

Apple's own 13-inch color monitor, due out this summer, requires the $499 Macintosh II video card to display up to 256 colors from a palette of over 16 million in a 640-by-480-pixel resolution. Called the AppleColor High-Resolution RGB Monitor, it will sell for $999. Apple's High-Resolution Monochrome Monitor also requires the Apple video card to display 640 by 480 pixels on a 12-inch screen.

Another upcoming display for the Mac II is The Big Picture from E-Machines Inc. in Tualatin, Ore. Designed for desktop publishing, The Big Picture is a 17-inch monochrome display and video card combination that supports 1,024-by-808-pixel resolution. E-Machines currently sells similar monitors for the Macintosh 512 Plus and SE computers. The $1,995 Macintosh II version is scheduled to be available in about two weeks. ■

Price still falling on Levco Mac enhancements

SAN DIEGO, Calif. — Levco's Prodigy series of Macintosh performance-enhancement boards continued their price drop this month, making Mac II power more affordable for earlier Mac models.

Originally sold for more than $9,000, the Prodigy 4, which clips onto the Mac 128K, 512K and Plus, has been cut to $3,499. The 68020-based Prodigy 4 includes 4 Mbytes of RAM, a 68881 math coprocessor, an Apple-standard SCSI port, a recoverable RAM disk, an additional internal power supply and a forced-air cooling system.

"We've gotten the price down to where people can consider it," says Levco spokeswoman Marjorie Mowry.

Levco introduced Prodigy 4 in January 1986, more than a year ahead of the Mac II.

"Some felt that Levco was 'ripping off' the Mac world," says Levco's chairman, Curt Johnson. "Very few understood that the Prodigy 4's high price tag was the result of its astronomical manufacturing cost."

The Prodigy's 68020 processor boosts the standard Macintosh clock rate from 8 MHz to 16 MHz and increases the data bus size from 16 bits to 32 bits. Calculation-intensive applications operate up to 100 times faster with the Prodigy's 16 MHz 68881 floating-point math coprocessor, according to the company.

Levco attributes the latest price cut to lower component costs and higher volume production. The company also dropped the price on its Prodigy SE and Prodigy Prime, which clips onto the Macintosh Plus.

The plug-in 1-Mbyte Prodigy SE, which has been shipping since March, dropped from $1,995 to $1,499 because of a larger initial production run. The 2- and 4-Mbyte versions have been dropped to $1,999 and $2,799, respectively.

The Prodigy SE also features an on-board expansion port for connecting a large-format monitor or additional add-on boards. It can be installed by the user and plugs internally into the Macintosh SE bus. ■

Developers jumping on Apple bandwagon

BY RUSTY WESTON
Special to MacWEEK

FORT COLLINS, Colo. — In the most explosive year of growth in Apple history, the number of software programs available for the Macintosh tripled.

"I'm absolutely certain that this is indicative that Apple is here to stay, which was not a [widely held] belief 12 to 18 months ago," says Gary Wollin, vice president of Bear, Stearns & Co. in San Francisco.

The jump from 1,200 to 3,300 programs is attributed to Apple cracking the corporate market, which spurred software developers to jump on the bandwagon, according to Wollin, and MENU, publishers of the official Macintosh product guide.

"Nobody wanted to write stuff for a small company two to three years ago," Wollin says. "Now it looks like Apple is here to stay."

Dealers, users and overseas distributors are gobbling up MacGuide, a $4.95 list of 2,000 software programs available by mail order from MENU. MENU's Apple II guide has an up-to-date listing of more than 10,000 software packages representing scores of developers.

Major categories of software include 46 kinds of personal finance programs, 17 desktop-publishing programs, 36 data bases and hundreds of miscellaneous tutorial lessons.

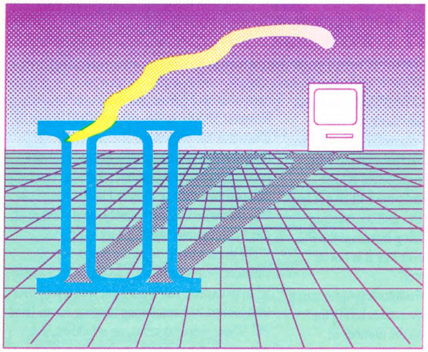
MENU also lists more than 9,500 software programs available for IBM PC compatibles.

According to Roberta Hamilton of MENU, the mail-order business is quickly approaching $1 million in annual sales.

MENU's biggest competitor is Data Source, a mail-order house in Atlanta.

The mail-order houses have the advantage of offering a larger selection of programs than typical computer stores but lack immediate delivery. MENU says it can deliver software within two weeks or quicker, if the user is willing to foot the overnight delivery cost.

In addition to listing the price and giving a brief description of the product, MacGuide tells which Mac software does not run on the Mac Plus, SE or Mac II. ■



Why Mac II compatibility is not a trivial matter

BY JIM BEAVER
MacWEEK Staff

Lists are funny things. Not funny "Ha-ha." Funny as in, "That's funny; we got left off the list."

The list presented here was distributed by Apple Computer Inc. and is not inclusive. It represents only those products Apple had tested as of June 1, which means the myriad products not listed either may not be compatible with the Mac II or may simply not have been tested yet.

Nevertheless, one developer who was left off worried whether "we're in some kind of political trouble" with Apple. Another wondered if "they know something we don't" about his program because he had tested it on a Mac II beta while Apple presumably is running the software on production units.

Apple's list begins a bit oddly because the cover sheet says that the list is "confidential and not intended for general distribution," but at the same time is stamped "Press Information." Several other items jump out, including the fact that Apple listed none of its own software. Apple products are indeed compatible with the Mac II, although MacWrite required an upgrade.

Other products notable for their absence include Lotus' Jazz, Ann Arbor Softworks' FullPaint, Microsoft Works, Innovative Data Design's MacDraft, LaserWare's LaserPaint and The FreeSoft Co.'s Red Ryder. One product notable for its inclusion is Microsoft's Word 3.0 in light of Microsoft's insistence that it is not compatible. The company says its 3.01 version due the end of June will be compatible.

The Mac II configuration used during testing consisted of a CPU with 2 Mbytes of standard memory, one internal hard disk, one 8-bit video card, one or two internal floppy-disk drives and a black-and-white monitor. Apple standard and extended keyboards were used and System 4.1 and Finder 5.5.

Several incompatible products had problems with System 4.1 rather than with the Mac II, sources said. Some products had problems with the Mac II's new, extended keyboard, leading one developer to complain Apple was continuing to "play games with the key codes."

All of which brings up the question of what, exactly, incompatible means. FullPaint, for example, runs fine on the Mac II but does not support the large screen, according to Mark Marlow, Ann Arbor Softworks' executive vice-president. The application retains its Mac Plus-sized image on the larger screen.

Marlow says his company has no immediate plans to upgrade the program. For now, the company is concentrating on FullWrite, which has an early August shipping target. That program is compatible with the Mac II, he says.

LaserPaint, by San Rafael, Calif.-based LaserWare, also runs on the Mac II, but because the program was written for the Mac Plus, the program displays in monochrome even on a color screen. Company President Isaac Goff says a color display capability based on Pantone colors is in the works and could be available in time for the August Macworld Expo in Boston.

Lotus Development Corp.'s Jazz is incompatible with the Mac II, but the problem is with Mac's System 4.1 rather than with the Mac II, according to Kathy Carbonneau, spokeswoman for the Cambridge, Mass.-based firm. Actually, Carbonneau says, anything above System 3.3 causes problems with Jazz.

Symptoms include an inability to open the communication module and strange font sizes appearing next to the spreadsheet. The company is developing an adapter, due to be released within the next few weeks, that will work with System 4.1, Carbonneau says.

But Galaxy, Lotus' new integrated spreadsheet, word-processing and data-management program that will supplant Jazz, should be ready by September, according to sources at the company. Carbonneau says that although Lotus considers Galaxy an entirely new program, an "upgrade path" to Galaxy will be made available to Jazz users.

A host of Microsoft programs ran into compatibility problems with System 4.1 and the keyboards for the Mac SE and Mac II, according to technical support staff. In addition to Word 3.0, Microsoft File and Flight Simulator are not compatible with System 4.1.

In some cases, the keyboard problems are more of an inconvenience than anything else because some commands are no longer available. Red Ryder 9.4, from St. Louis-based FreeSoft, had problems with the extended keyboard, but developer Scott Watson says version 10.0, which he hopes to have ready in July, will be compatible. Watson says he got around the keyboard problems by going to a "generic keyboard installation utility program" that allows users to assign key codes to any key on the keyboard. ■

Apple's list of MacII-compatibles

The following list of Macintosh II-compatible products was compiled by MacWEEK from a similar list recently released by Apple. The list is not comprehensive and Apple acknowledges that significant products are not included. The updated list reflects version compatibility as claimed by the program publishers.

The accompanying article reports on products that are not now compatible with the Mac II.

Product/Version	Publisher	Price	Category
Acta 1.2	Symmetry	$60.00	outliner
ClickArt Effects 1.01	T/Maker	49.95	graphics
ComicWorks 1.0	Mindscape	79.95	graphics
ConcertWare Plus 3.3	Great Wave	69.95	music
Consulair 68000	Consulair	79.95	programming
Cricket Draw 1.01	Cricket Software	295.00	graphics
Design Scope 1.15	Brainpower	249.95	electronic design
Dollars and Sense 1.4	Monogram	149.95	accounting
Double Helix 1+	Odesta	495.00	database manager
Excel 1.04	Microsoft	395.00	spreadsheet
ExperLisp 1.5	ExperTelligence	495.00	programming
EZ Draft 2.0D	CASE	2,000.00	CAD/drafting
Filemaker Plus 2.0	Forethought	295.00	database manager
FRAME MAC 1.11	Erez Anzel	595.00	engineering
Illustrator 1.0	Adobe	495.00	graphics
InBox 2.0	Think Technologies	350.00	communication
Insight Gen'l Ledger 1.01	Layered	595.00	accounting
Laser Author 1.3	Icon Technology	199.95	document processor
LogicWorks 1.3	Capilano	199.95	engineering
MacServe 2.2	Infosphere	250.00	disk utility
Mac C Toolkit 5.0	Consulair	425.00	programming
MacInTax 2.0	SoftView	99.00	accounting
MacLink 1.0N	DataViz	195.00	communication
MegaFiler 2.2	Megahaus	50.00	database manager
Mentor	Target Software	99.95	spellchecker
Mentor Plus	Target Software	199.95	dictionary
MicroPhone 1.1	Software Ventures	149.95	communication
Molecular Editor 1.0	Drexel University	30.50	education
More 1.1	Living Videotext	295.00	outliner
Multiplan 1.1	Microsoft	125.00	outliner
NETWAY 1000 4.0	TriData	3,195.00	communication
Omnis 3 Plus 3.24	Blyth Software	495.00	database manager
OverVUE 2.1d	ProVUE Development	295.00	database manager
PageMaker 2.0	Aldus	495.00	document processor
PictureBase 1.2	Symmetry	99.00	graphics manager
Plains and Simple 1.02	Great Plains Software	695.00	accounting
Professional Composer 2.0	Mark of the Unicorn	495.00	music
Quick Circuit 4.2	Bishop	525.00	engineering
Rags to Riches:	Chang Laboratories		
Inventory 2.6		399.00	accounting
Ledger 3.1		199.95	accounting
Payables 3.1		199.95	accounting
Receivables 3.1		199.95	accounting
Ragtime 1.1	Orange Micro	395.00	document processor
Ready,Set,Go! 3.0	Letraset USA	395.00	document processor
Reflex 1.0	Borland	99.95	database manager
SEQS 3.0	CET Research	103.00	mathematics
SideKick	Borland	99.95	desktop accessories
Smartcom II	Hayes Microcomputer	149.00	communication
StatWorks 1.2	Cricket Software	125.00	statistics
Stella 1.3	High Perfomance Systems	295.00	business
Straight Talk 2.08	Dow Jones	79.00	business
SuperPaint 1.0	Silicon Beach	99.00	graphics
Turbo Maccountant 2.0	Digital ETC	495.00	accounting
Turbo Pascal 1.0E	Borland	99.95	programming
Word 3.0	Microsoft	395.00	word processo
Write Now 1.0	T/Maker	175.00	word processor

Macintosh programming too complex?

Managers weigh extra cost against added versatility

BY LAWRENCE STEVENS
Special to MacWEEK

Everyone at John Peterson's $8-million-a-year office-supplies dealership was supposed to use the off-the-shelf, PC-based inventory and billing system to check stock and to find out who owed the company exactly how much money. Instead, what would happen almost every time is that people would fiddle with it for a few minutes, get hopelessly lost in some routine and cry out to the office manager to bail them out.

It was obviously time to get rid of the old system and replace it with custom software. While it is not unusual for a company of this size to have software custom-designed for it, General Manager Peterson decided instead to hire programming consultants to write the software for the Mac Plus.

IBM did not play very well

There is no question that, compared with other personal computers that use a command-line interpreter as opposed to a graphic-user interface, the Macintosh is a more complicated and time-consuming to program. But as Peterson and others have discovered, the Macintosh's greater power, ease-of-use and memory capability provide strong dividends in return for the additional effort.

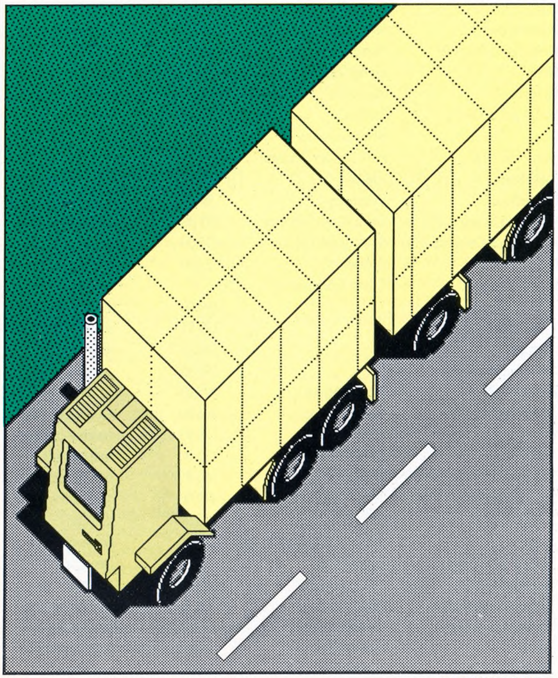
Says Peterson, "The first few consultants we called proposed IBM AT and DEC systems. But at a staff meeting, the idea of buying an IBM didn't play very well. Our system at that time ran on an IBM PC. On the other hand, we also have a Macintosh, which is used primarily to write and store sales proposals. That's easy enough for even the salespeople to use. At the staff meeting, the employees demanded that we try to get the new system on a Macintosh."

But when Peterson made some calls, he found that the few programmers who could create Macintosh software estimated the cost to be, on the average, twice as expensive as creating software for the AT. Finally, after some soul searching — and a bit more nudging from his staff — Peterson went with the Macintosh anyway.

"I have to admit that the investment was worth it," he says. "Now everyone can easily access the stock records, so customers are given better service and the office manager does not have to stop her work twice a day to help someone out of a jam."

An 18-wheeler

Bill Barney, microcomputer manager at a large oil company, says: "People who say the Macintosh is harder to program than the PC are not really comparing apples to apples. It may take less time to learn to drive a Volkswagen than an 18-wheel Mack truck, but the truck will do a lot more work for you. If you want to write an 80-character, line-by-line program using a standard cursor on the Mac, you can do that with a commercial BASIC package, and development time will be not be much more than on the PC. But try creating pull-down menus and dialog boxes on the PC, and you'll quickly discover that it is not so easy to program any more."



RUDY VANDERLANS

The complexity of Macintosh programming — and the expense to companies hiring the work done — depends on the number of Macintosh utilities used.

Program developers see three general levels of programming complexity.

The first level completely ignores the Macintosh's graphics capabilities and user interface. Such simple programs, such as a checkout routine in a corporate library, might be written in Mac BASIC, Pascal or another commercially available language. The software would behave much like that running on any other personal computer and development time and cost also would be similar.

But since such a program would probably run slower on a Mac than on another personal computer, it is unlikely anyone would choose a Mac for this type of application unless it was the only machine available.

The second level of Macintosh programming uses a compiler to provide access to some of the familiar Macintosh facilities. For example, all of the major BASIC compilers for the Mac, including Microsoft BASIC, Zedcor's ZBasic and Pterodactyl Software's PCMacBASIC, provide access to such toolbox items as pull-down menus, dialog boxes, control-key menu equivalents, QuickDraw routines, Scroll Bars and mouse pointers.

Art Shumer, program manager in the language group at Microsoft Corp. in Redmond, Wash., calls this "sheltering the user from the realities of the Macintosh." He says although programming the Mac is different from other microcomputers, compiler developers have made some of the more difficult routines accessible through the old, familiar languages.

Programming on the ultimate level

The ultimate level in Macintosh programming can be seen as being similar to assembly-language programming on other personal computers. The programmer addresses the Macintosh ROM directly and creates software that is sleek, elegant and efficient.

Development time on this kind of program is generally longer, but for complex applications, like John Peterson's inventory and billing system, that require speed, power and ease-of-use, the extra time and money pay off in higher efficiency for the end user.

It is primarily this type of programming that has given the Macintosh its reputation for complexity. In order to work with the Macintosh's ROM, a programmer must digest *Inside Macintosh*, Apple's 1,500-page documentation manual, published by Addison-Wesley. This tome is not exactly light reading.

Because of these varying degrees of complexity, managers who hire programmers must be sure the specifications for the proposed software are clearly understood. The experience of John Sullivan, president of Lafayette Hospital Supply in West Springfield, Mass., illustrates the problem that can arise. After three days of meetings with his bookkeeper, accountant and programmer, Sullivan carefully laid out the Macintosh-based accounting system he wanted. Unfortunately, neglected in all those discussions was the user interface.

"I use a Mac at home for my personal finances," says Sullivan, "so I thought I knew what to expect. But what I got was a program that looked like something running on an IBM PC. There were no icons, no windows, not even a scroll bar. Mouse pointer functions were very limited. We had to use the keyboard for almost everything, and the data had to be entered in a rigid order. I had to scrap the whole thing and start from scratch."

Sullivan and other business people say programmers should assume that when a manager talks about a "Macintosh program," he means a program with graphically based user interfaces, but bitter experience suggests a wise manager should spell this out.

Looking and waiting

Many experts have noted that another possible problem area concerns the Mac's "event-driven" architecture, which the best Macintosh programs take advantage of. The Macintosh's potential to be event-driven — some describe it as computer passivity — may be one of its most powerful features. Whereas most PCs are programmed to accept user input one line at a time, and only when the program asks for it, the Macintosh "looks and waits" for the user to initiate input and then accepts the data in any order that the user gives it. This is a new concept in programming, and one that is rarely taught in school. Managers should make sure their programmers are familiar with it.

Once a manager has decided to have custom software developed for the Macintosh, finding a programmer to do the job may be a bit harder than finding one for IBM or DEC machines. The best place to start looking is the local chapter of the appropriate industry group. Other members may be able to provide recommendations. Sometimes development costs can be shared among several firms. A local programmers' association, like the Data Processing Management Association, or local Apple users' groups and dealers can help, too.

Once a programmer is found, consultants agree, it is very important to spend time discussing ideas for icons, dialog windows, mouse pointer functions and other utilities so the manager knows he will be getting a true "Mac program."

Is it worth it?

Compared to IBM PCs, the Macintosh is still a relatively new computer. Many businesses are just beginning to appreciate the advantages its advanced user interface and high memory capability offer the programmer and the end user. But to release this power, custom Macintosh programs require more thought, planning and, in many cases, more development time than programs for other machines.

The upside of this equation is obvious. Every manager will have to decide for himself whether the cost is worth it. ■

Gestation of a coprocessor board

How Apple, Phoenix and AST came to deliver the goods

BY MICHAEL GOODWIN
MacWEEK Staff

IRVINE, Calif. — The war between Mac fanatics and PC partisans will be over in August. The armistice is in beta testing.

The victory banners read "Connectivity!" and the peacemakers are Apple Computer Inc., Phoenix Technologies and AST Research Inc., three major corporations cooperating for the first time to bring out the Mac286 for the Mac II and Mac86 for the SE. These MS-DOS coprocessor boards are the long-awaited crossover products that will let one machine run programs written for either system.

The fascinating question is, who owns the breakthrough technology? AST has "exclusive rights to sell the products," but when MacWEEK asked Ash Jain, AST's former Apple manager, if that meant Apple owned the coprocessor technology, his answer was cautious.

"It is a fairly complex arrangement," says Jain, "and the details are not really relevant to what the product does and how well it works. Apple certainly has a vested interest in it, but it needn't have ownership exclusively. Let's take a hypothetical example. If three partners develop a product, and each of them has a proprietary vested interest in it, and one of them has exclusive rights to manufacture and market it, that doesn't mean one party has exclusive ownership of the product."

Apple gets a cut

However, reliable sources in the industry report that Apple does, in fact, own the product, which began development in early 1986. Norwood, Mass.-based Phoenix was hired to provide its PC BIOS expertise. AST came into the picture when Apple President John Sculley realized how difficult it would be for Apple to support the product.

Twelve man-months of development were devoted to designing the boards at AST, work undertaken entirely on AST's nickel. AST's eventual payoff was the "exclusive rights to sell" clause. Reportedly, Phoenix gets a royalty on every board sold. Apple also gets a cut.

It is hard to imagine how a viable coprocessor card could have come to market without this rare, three-way coproduction. Obviously, Apple knows more about the Mac operating system than anyone; Phoenix is unquestionably the world's leading authority in third-party PC BIOS, having provided BIOS chips for many PC clones; and AST has had the PC add-on board market under lock and key for years with a series of successful multifunction memory cards, including the brilliantly-named Six-Pak.

The need for a way to cross the no man's land between machines has long been obvious, and a number of products have appeared in an attempt to fill it. But despite all the cute ads with Charlie Chaplin look-alikes, the Mac-to-PC products have been awkward to use, insufficiently compatible, fiendishly expensive or all three.

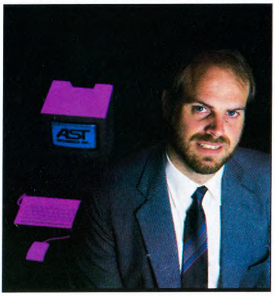
So much data already in DOS

"It's not necessarily something everyone needs," says Jain. "But in a corporate environment where there's a mix of Macs and PCs and there's so much data already in DOS format, the speed with which you can exchange and process data becomes important. This is the segment of the market that has a crying need for coprocessor capability.

"In order for Apple to be successful in the corporate market," Jain says, "it's been felt for a long time that MS-DOS compatibility was essential. In 1985, after unsuccessful attempts by Apple to get into the business market with the Mac 128K, the Lisa and the Apple III, we saw the complete entrenchment of MS-DOS in the corporate environment. If you did not have MS-DOS you could not sell in the majority of the corporate markets.

"The Mac Plus made inroads by focusing on special vertical markets like desktop publishing, but it didn't have the power to enter the business market in a broad way. Connectivity means both vertical connections (micro to mini to mainframe) and horizontal connectivity (networking). The ultimate connectivity is the ability to process information across the barrier between unlike machines, to run an MS-DOS application on a Mac," Jain says.

Mark Lebar: "could not put all the logic on a board."



MARK RICHARDS

"It's nice to be able to trade ASCII data files between an IBM and a Mac through an RS-232 cable, but it's inefficient. You need the ability to immediately process that data. You need one computer within a group that can process both diskettes, not just process them, but cut and paste from different applications," he says.

Stand-alone PC on two boards

The Mac286 provides the ideal solution, one that retains the integrity of the Mac environment while providing the full power and speed of a PC.

What does it do and how well does it work?

According to Jain and Mark Lebar, marketing manager of AST's Apple Enhancement Products Group, the Mac286 is essentially a stand-alone PC computer on two boards (..."because we could not put all the logic on one board," Lebar says). It includes an 80286 processor that runs at 8MHz with one wait state — not as fast as some PC clones but faster than the original AT. It comes with 1 Mbyte of RAM (the usual 640 Kbytes of base memory plus 360 Kbytes of "above" memory supporting the standard EMS specification). Socketed for a high-speed math coprocessor and expandable to 4 Mbytes, the Mac286 also includes a floppy-disk controller to connect an external DOS floppy drive, either 5.25-inch (360 Kbytes or 1.2 Mbytes) or 3.5-inch (800 Kbytes).

Best of all, this stand-alone PC provides access to all the Mac facilities. It runs on the Mac hard disk. It uses the Mac display to emulate IBM's CGA and the Hercules mono display. It drives an ImageWriter or a laser printer and emulates an Epson FX-80. You can use a standard Mac keyboard or Apple's extended keyboard that emulates the full PC keyboard.

According to advance reports, the MS-DOS operating system is loaded onto a DOS partition on the Mac disk, which then appears to the Mac operating system as Drive C. Flexible in size, the DOS partition is adjusted automatically by the Mac so it is big enough to hold all the PC applications. When the Mac is turned on, MS- DOS appears as an icon on the desktop. When the icon is clicked on, DOS comes up as a window in which any PC-compatible application can be run. Files saved in DOS go onto a "free-format" D: drive. Once the user returns to the Mac desktop, he can gain instant access to the data files on Drive D using familiar Mac applications and even cut-and-paste data from one environment to another.

STEVEN BARANTZ

Ash Jain: "It's a fairly complex arrangement."

A world of its own

Full, two-system multitasking is not possible because Mac286 runs under the Macintosh operating system, which is still single tasking. But, Lebar says, users can do it the other way around.

"You can launch Mac286 on the Mac II," he says, "and since it has its own memory it operates in a world of its own. You can get it recalculating a giant 1-2-3 spreadsheet, for instance, use Switcher to close that window so the Mac isn't looking at it, and go run a Mac application. Meanwhile, the IBM is continuing its recalculation. You won't see it, but when you go back into the DOS side, the result will be waiting for you."

Even this limited multitasking is not available on the Mac86 for the SE, which does not include its own memory or DMA (Direct Memory Access) chip but uses the Mac's built-in memory.

"The Mac86 design goal was cost effectiveness," Jain says, "to provide the ability to run MS-DOS applications on the SE at the lowest cost possible. Also, there was the space constraint, so we don't have DMA and you can only run a 360K, five-and-a-quarter-inch floppy drive. It does not emulate the Hercules screen, just the Color Graphics Adapter. The Mac86 board will ship six weeks after the Mac286, sometime in mid-September. It's just because we started work on the Mac286 first."

Many hard-core Mac users, hearing that Apple, Phoenix and AST were working on a coprocessor card, ask, "Why would you want to run DOS?" Jain says that from a corporate perspective, the reaction is, "Finally! MS-DOS for the Mac!"

"That is really our audience, not the Mac user. But even the Mac people who start with skepticism, as soon as they see the demonstration of the product and how well the Mac 'look-and-feel' has been retained along with the MS-DOS capability, their eyes pop out." ■

American Bar Association approves Mac billing program

SEATTLE — Lawyers with Macintosh computers now have the comfort of American Bar Association-approved software.

Satori Software's Legal Billing II is the first Mac program approved by the Legal Technology Advisory Council (LTAC), a software review service for the legal profession.

The council takes four to 14 weeks to review products, including in its criteria that the program must do what it claims, have adequate documentation but no bugs or glitches.

Legal Billing II is a time-billing program that includes trust accounting, the ability to keep a historical record of clients' billing activity and up to 76 codes for specific services and disbursements. ■

Tecmar adds 40-Mbyte cartridge to storage products

CLEVELAND — Tecmar Inc. will add a 40-Mbyte cartridge tape drive to its line of data storage products in late July.

Priced at $1,395, the drive connects to the SCSI port of the Mac Plus, SE or II. The tape drive, called QT-Mac40, will use a DC2000 or equivalent mini quarter-inch data cartridge. Based on Tecmar's QIC-100 recording standard, the tape drive is designed to have a high level of error correction.

Tecmar representatives say they anticipate the tape drive market being a major growth opportunity. They attribute this to Apple's endorsement of the QIC-100 tape format and Macs starting to be delivered with hard disks. ■

COMMUNICATING

John Edwards

About a week ago, my friend Bill made a remarkable suggestion. He said, "Do you think this whole thing about letting Macs run MS-DOS software is a red herring? Is it possible that Apple added the potential for SEs and Mac IIs to handle DOS coprocessor boards merely as a Trojan horse, a way to make Apple hardware fit the specs of corporate and government PC purchase orders?" I felt the world shift on its axis.

Bill had spoken the unspeakable. Not only did he suggest that Apple Computer Inc. is being something less than forthright when it speaks to the masses about the marvels of coprocessing, but also that a number of third-party vendors — coprocessor product-makers like Phoenix Technologies and Dayna Communications — have been hoodwinked into believing the very same thing.

Feeling slightly queasy, I mumbled a quick goodbye to my friend and headed for a nearby Orange Julius stand to buy a drink that would steady my nerves and strengthen my resolve. For the next several hours, Bill's comments rattled through my mind. Trojan horse? Fit the specs? The more I thought about it, the more convinced I became that my pal was onto something.

Think about it. How many people do you know who have an urgent need to run PC programs on a Mac? Oh sure, we keep hearing about this mythical office in which Apple and IBM computers coexist in a sort of digital brotherhood, all using the same software and peripherals. But I have not met many Mac users who require 8086/80286 coprocessing.

What Mac users do need is a way to transfer data from PCs to their machines. This can be accomplished by connecting the computers together through their modem ports, by placing them on an AppleTalk network or by sending the material out to a data conversion service. Apple also markets an IBM-type 5.25-inch floppy-disk drive that enables users to read/write on a DOS-formatted disk.

Putting DOS data into a Mac makes sense. Running DOS programs on a Mac is dumb. Okay, you will not have to buy a whole bunch of new programs, but you will have to purchase coprocessor cards for each Mac. Even if that makes financial sense, and I do not see how, look at what you are giving up. With the Mac as an expensive PC clone, you will lose the computer's graphics and user interface, the features for which most people buy Macs in the first place. Heck, if you are that interested in PC compatibility, forget about the Macintosh and go to the nearest "Playthings 'B' Good" for some Korean PC work-alikes. They'll do the job more reliably at a fraction of the cost.

Coprocessor users also must face the problem of compatibility. While all coprocessor card makers claim "almost" complete support for the Mac's peripherals and I/O service, experienced users know there is no such thing.

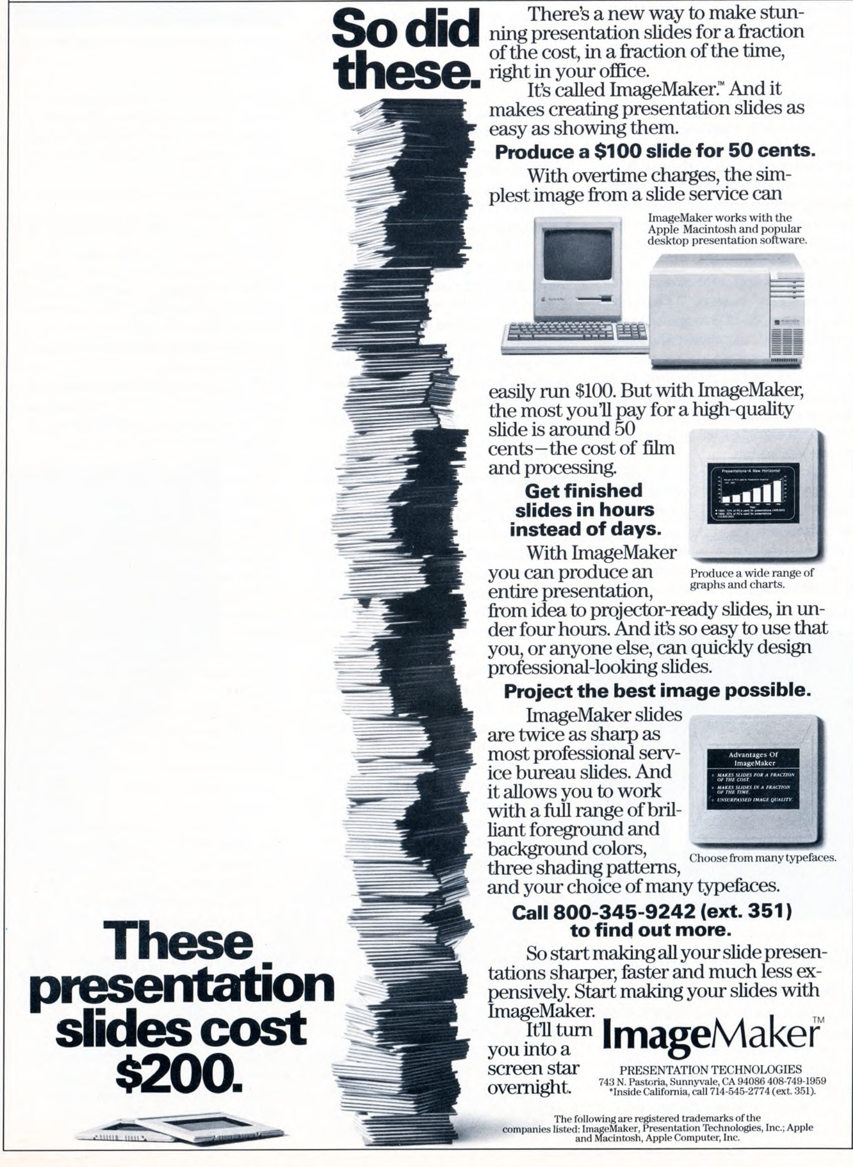
Thinking about buying a coprocessor card? Just wait until you discover your favorite PC program does not like its new MacSurroundings. And wait until you find out that you cannot use any of your PC's add-in boards unless you buy an expensive external coprocessor/system unit. As you have no doubt gathered by now, the need to equip Macs with coprocessor boards is minimal. It is primarily a political move by Apple. Just as my friend said, it is a way for departmental computer buyers to circumvent antiquated purchasing guidelines. (You need a PC compatible but want a Mac? No problem. Just let me stick this card in here. Urggh. Voila! Meet Macinclone!)

My theory is that one day an unscrupulous entrepreneur will market a coprocessor card made entirely of cardboard. Will it work? Of course not. But who is going to find out? No one will ever catch on because coprocessor cards are never used by anyone anyway.

Yesterday I met my friend again. "Bill, you're right," I said. "This whole MS-DOS/Mac coprocessor thing is just a Trojan horse. Thank you for opening my eyes."

Bill laughed. "John! You always take things so literally. I was just playing the devil's advocate. At my office we're going to fix up about a dozen Mac IIs with coprocessor cards so they can run all those PC programs we've spent a bundle on. It's a sin to waste software, right? It says so right here in this brochure."

The world shifted on its axis again. This time I didn't slip. ■



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MacWEEK

DEC's price reduction no threat to Apple, analysts say

BY JIRI WEISS
MacWEEK Staff

SAN FRANCISCO — Digital Equipment Corp.'s recent dramatic cut in the price of its low-end VAXstation 2000 does not present a serious threat to Apple's Macintosh II or even machines from Apollo, Hewlett-Packard and Sun, analysts say.

But DEC's price cut from $10,500 to $5,400 on its monochrome system with a 19-inch screen may dry up the market for DEC's competition in companies with a large investment in DEC equipment. In December, DEC will introduce a $4,600 configuration with a 15-inch screen.

"The greatest impact will be felt in DEC's installed base," says Marcia Brooks, senior analyst with International Data Corp. of Framingham, Mass., "but there will be some opportunity in medium and small businesses that are more price-sensitive."

Maynard, Mass.-based DEC seems to agree. "That's where the value is immediately perceived," says Christopher Reed, marketing manager for DEC's workstation group.

"Someone who is looking for a workstation that's not part of a [DEC] system is much more likely to consider a Mac," says Bob Fried, director of special interest groups for Digital Village, an independent on-line information service for DEC customers.

COURTESY DIGITAL EQUIPMENT CO.

> "It is as if we had awakened a sleeping elephant. Now, let's see if [he] can dance."

The new monochrome entry-level VAXstation 2000, available in December, includes a 20-MHz 32-bit processor with a floating point unit, 4 Mbytes of memory, a built-in Ethernet adapter, a 15-inch 1,024-by-864-pixel resolution monitor, a three-button mouse and a one-year on-site system warranty.

DEC may pose a more direct threat to HP, Sun and Apollo, but with the latest workstations from Apple and IBM, Reed says, "It's not clear to us that there is a distinction with the new generation [of machines]."

Apple and IBM enjoy an advantage in terms of the sheer number of personal productivity applications. "All the 2,500 applications, which include graphics and technical productivity, took us three years to get," an Apple spokeswoman says. "It won't be easy for the competition to catch up."

DEC intends to. "This is just our first move into the marketplace," Reed says. DEC hopes to attract more software developers, he says, and while a VAXstation 2000 and VAX software will not be found on the same shelf with a

See DEC REACTION, Page 12

Sun moves beyond engineering into Wall Street's concrete canyons

BY RICHARD HALSTEAD
Special to MacWEEK

NEW YORK — If there was any doubt that workstation vendors are looking beyond the engineering market for new customers, just take a walk down Wall Street. Sun Microsystems Inc.'s pioneering efforts to develop new customers among brokerage houses and investment banking firms are paying big dividends. Although Apollo Computer Inc. has recently decided to pursue the market as well, Sun has established an early lead over both it and Digital Equipment Corp.

"Demand for their products is showing up all over the place," says Steve Larson, president of QV Consulting in New York. "Financial analsyts who follow Sun are getting traders at their firms interested in their products. That's very unusual."

Larson's firm designs software that ports real-time market data through the workstations.

Money makers all along Wall Street seem to have recently discovered the power workstations can bring to employees' desktops. Sun says it expects Wall Street revenues during the fiscal year ending June 30 to reach $15 million. Analysts say they believe the investment market for workstations will explode to between $200 million and $300 million by 1988.

Kidder-Peabody & Co. in New York has spent $100,000 to buy six Sun workstations and plans to add two or three more, says Paul Sobota, vice president of formula trading.

Frank Duquette, the director of technology at Greenwich Capital in Greenwich, Conn., says a network of Sun workstations has largely replaced the HP 150 and IBM PCs his firm was using before September 1986. Greenwich's network consists of 17 diskless Sun workstations, four file servers and Sun's networking protocol, Network File Server.

Morgan Stanley & Co. has purchased more than $1 million worth of Sun equipment, says Bruce Golden, Sun's financial services manager. That is a bit embarrassing for Apollo because Morgan Stanley is their investment banking firm. And Quotron, a Los Angeles stock-quotation and equity firm, recently signed an OEM agreement with Mountain View, Calif.-based Sun. Quotron will use the Sun workstations as terminals to connect with its Q1000 supermicros, says George Grant, Quotron's director of product marketing.

Nevertheless, Bill Kelly, Apollo's marketing director, is not worried. "Sun has somewhat of a lead over Apollo," he says, "but it won't show up in the volume numbers 12 to 18 months from now."

Although Sun has been the first to enter the market, Chelmsford, Mass.-based Apollo is collaborating with designers of financial services software, such as Prophecy Development

See WALL STREET, Page 12

TSSnet links Macs with VAXes on DECNET network

BY ABIGAIL CHRISTOPHER
MacWEEK Staff

ARLINGTON, Texas — Thursby Software Systems has begun shipping seed copies of TSSnet, network software that enables Macintosh computers to connect with Digital Equipment Corp.'s DECNET network.

"This networking software allows users of DEC computers on the DECNET network to connect directly to Macintosh computers without having to purchase any additional hardware adapters," says Bill Thursby, company president. "The system allows Mac users to have access to VAXes while still using the standard Mac interface."

TSSnet provides Macintosh users with access to DEC computers' task-to-task communications, remote files and electronic mail. As many as 64,000 Macintosh nodes can be linked to a VAX host using the network software. TSSnet also can support IBM PCs. Task-to-task communications means users of DEC computers or Macs can communicate with other tasks within DECNET and TSSnet. Mac users on the DECNET can access and print remote files on LaserWriter printers on the AppleTalk network.

Community-Mac, a similar product marketed by Technology Concepts of Sudbury, Mass., "tells a VAX on the DECNET that a Mac is a node. Each node is given an identification number on the DECNET," according to a company representative.

TSSnet will provide Enhanced End Node support for Ethernet, using board-level adapters for the Mac SE and Mac II, which will allow Macs and DECs to coexist on Ethernet.

The network includes a SET HOST function that allows multiple DEC VT100 terminal windows on the same Mac or support for connecting existing emulators via a transparent network port.

Version 1.0 of TSSnet is $329. ■

DEC REACTION

Continued from Page 11

Mac II, the company is broadening its distribution channel. "You can now order VAXstations on the phone," Reed says.

The DEC announcement caught industry pundits by surprise. "That's because DEC has never pursued a low-price strategy before," says IDC's Brooks. "Now it is as if they had taken a page out of the Sun marketing book."

"It is as if we had awakened a sleeping elephant," says John Hime, Sun's director of product marketing. "Now let's see if [he] can dance."

Mountain View, Calif.-based Sun and other competitors believe DEC cannot. They point out that the VAXstation 2000, a low-end model introduced in February, has the same proprietary processor as the earlier MicroVAX II.

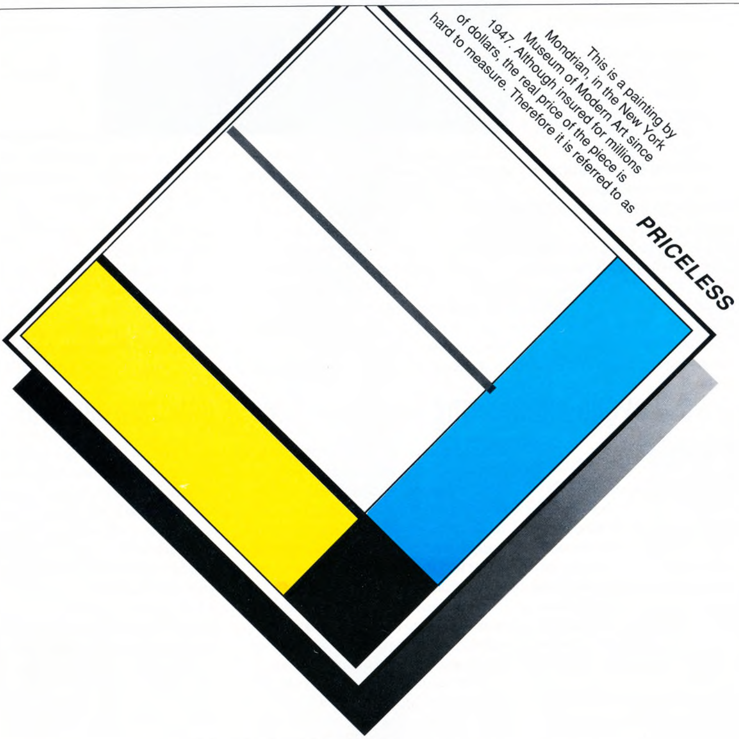
Apple claims the Mac II has twice the performance; Sun claims a 50 percent advantage. But several benchmark tests run by independent laboratories show the VAXstation ahead in performance. "You can find benchmarks that will prove any machine more powerful," says Reed. "All of us have 32-bit machines … all are roughly comparable in performance."

"The fact that DEC is slashing the price may mean that not many people are buying them," Hime says. "The message from the marketplace is that people are not willing to pay premium for proprietary technology. Our marketplace wants industry standards."

DEC's Reed says IBM and Apple's distinct operating systems have hampered efforts toward an industry standard. As far as shipment numbers are concerned, he says, VAXstation 2000 is selling well. "This quarter we are going to sell as many machines as in the whole of 1986." Reed declined to reveal numbers.

The VAXstation 2000 has not been doing well, Brooks says. "The price was too high and there was no color version available. Now there is color and the price is much lower. This should be a volume seller for DEC."

Last year, DEC accounted for 7.3 percent of the engineering workstation market, a distant fourth behind Sun, HP and Apollo, according to IDC. ■


This is a painting by Mondrian, in the New York Museum of Modern Art since 1947. Although insured for millions of dollars, the real price of the piece is hard to measure. Therefore it is referred to as **PRICELESS**

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MacWEEK

MacWEEK. The Workstation Newsweekly.

WALL STREET

Continued from Page 11

Corp. in Boston, IntelliCorp in Mountain View, Calif., and Inference Corp. in Los Angeles, to develop total solutions for Wall Street firms' computing needs, not just boxes.

But Sun seems to have no problems attracting its own software developers. "Our software runs only on Sun workstations," says Eric Resnick, director of marketing for Fame Software Corp., a Citicorp subsidiary in New York.

There are many explanations for the increased interest in workstations on Wall Street. Golden says that during the last two years investment houses have hired many new employees with extensive academic backgrounds, some, such as Dr. David Shaw at Morgan Stanley, with professional degrees in applied mathematics. These people were already accustomed to using workstations and have been instrumental in encouraging their wider use, Golden says.

Kelly has another theory. He says that after experimenting with personal computers, many investors have become convinced they need more power. For the most part, however, digital workstations are replacing the video monitors that crowd traders' desks.

Since real-time data on stock prices and critical news developments has been digitized, it can be fed through the workstations for nearly instantaneous analysis. In addition, the windowing capabilities of the stations allow users to reduce the number of terminals on their desks; one workstation terminal can replace four video screens. Furthermore, information can be displayed as graphics to make analysis faster and easier. Windows can even be preprogrammed to open up when certain parameters are met, Golden says.

Perhaps most importantly, workstations are very efficient for setting up LANs that can connect with super minicomputers, Larson says.

Although Apple has no plans to focus on this market, its new Mac II with a UNIX operating system has the potential to become a terminal in such a LAN, observers say. "It would be a dynamite workstation," says Grant.

Sun's recent reduction in the price of its 3/50 entry-level, diskless workstation, from $7,900 to $4,995, shows it is taking no chances on losing market share because of price. In a recent report on the workstation market, David Burdick, an analyst with Dataquest Inc. in San Jose, Calif., predicts Apollo will respond to Sun's price reduction by introducing a low-end, $5,000 product called the DN2000 in the second or third quarter. ■

Spy-proof Macs will open Pentagon's doors for Apple

BY RUSTY WESTON
and STUART SILVERSTONE
Special to MacWEEK

WASHINGTON — Thanks to arcane spy-proof high technology now available on selected Macintosh models, Apple Computer Inc. is moving into the lucrative world of defense contracts.

The Mac II will be available for use by the Pentagon by the fourth quarter of 1987, says one insider who watches the little-known world of Tempest technology.

Tempest refers to a Department of Defense security specification mandating that computers do not emit radio frequency signals. Strange as it may seem, emissions from an unsecured terminal can be intercepted and deciphered.

Apple will be poised to earn a much larger share of the $1 billion annual Tempest market segment through Apple-authorized integrators who modify the Macs into lead-shielded security systems.

Not surprisingly, Tempest technology, the most sophisticated anti-spy countermeasure available, triples the price of a $3,000 computer. But the product is not foolproof. Experts say all the high-tech security in the world cannot stop a clerk from dropping a classified computer printout into a trash can.

The National Security Administration added the Macintosh 512K to its preferred products list in October 1986; since then the integrators have scrambled to produce new units whenever Macs are upgraded.

"We got a good jump on the Mac II," says George Brazel of Tempest Products Inc. of Sterling, Va., who has a Macintosh Plus on the market and a Mac II in the works. "We started in April. We knew the Mac II was coming, but it's still my feeling there's a large segment of the population that still may be interested in the Mac Plus."

Catherine Renault, manager of product marketing for Atlantic Richfield's Tempest Division, agrees about the potential for Tempest Macs. "Sales for the Mac are greater than expected, given the limited Tempest market," she says. "Mac-intensive defense contractors, such as Hughes, Boeing and McDonnell Douglas, are using it for desktop-publishing manuals and proposals on classified contracts."

According to Renault, ARC, formerly known as Systematics General, offers a Tempest Mac that retains the standard chassis. Except for a second 800-Kbyte internal disk drive and a shielded keyboard cable and plug, the ARC model looks identical to a commercial Mac. The unit is wrapped with lead shielding and fitted with electronic suppressors to avoid the possibility of signals being monitored by unauthorized

See TEMPEST, Page 14

Competition creeping up on big desktop-publishing players

BY PRESTON GRALLA
Special to MacWEEK

The bright future analysts prophesy for the desktop-publishing market always seems to be just around the corner. But future numbers do not necessarily mean anything in today's already sizable market.

While Aldus Corp., Adobe Systems Inc. and Apple Computer Inc. still reign as the dominant players, a second tier of companies with significant sales and another group of firms, including some that are dominant in other segments of the electronic-publishing world, are expected to jump in soon.

The pie is big enough so that even those with small places at the table can thrive. Revenues in the desktop-publishing market in 1985 totaled $299.4 million, according to CAP International, a market research firm in Marshfield, Mass. By 1991, the firm says, the market will grow to nearly $3 billion.

While CAP does not break down revenues into the Mac and IBM worlds, Gina Clark, associate director of the Computer Publishing Service, says "The majority of [desktop-publishing revenue] certainly is in the Mac world."

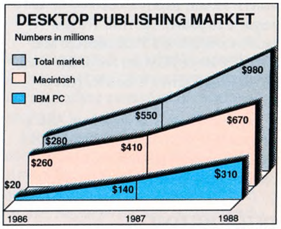
Dataquest Inc., a market research firm in San Jose, Calif., is not as bullish as CAP on the size of the desktop-publishing market. In 1986, the total market was $280 million. Of that, $260 million in sales went into the Mac environment and $20 million went into the IBM environment, according to Dataquest.

Dataquest says it expects both markets to grow, with IBM expanding at a faster clip. By 1988, the firm estimates, the pie will be worth $980 million, with $670 million going to the Macintosh and $310 million going to the IBM market.

The large players in today's market, aside from the big three of Aldus, Adobe and Apple, are a diverse group of hardware and software manufacturers. They range from companies with only eight employees to an international conglomerate with $972.8 million in total sales in 1986 and more than 12,000 employees in five continents.

These firms will not have the field to themselves for long because companies in other segments of the electronic-publishing market are targeting the lucrative Mac desktop-publishing sphere. Letraset of Paramus, N.J., has been in the Mac publishing field since July 1986, when it acquired the rights to MacPublisher from Boston Software Publishers of Boston. Letraset, primarily a maker of graphic arts supplies, had $183.2 million in total sales in 1986. The firm is a subsidiary of the international corporation Esselte Business Systems Inc., which also owns office supply and equipment firms. Esselte's sales totaled $972.8 million in 1986.

In January, Letraset sold MacPublisher back to Boston Software Publishers and bought the rights to Ready,Set,Go! 3 from Manhattan Graphics The firm is closemouthed about sales of the package, but Peter Dyson, editor of the Seybold Report on Desktop Publishing, said 5,000 copies of Ready,Set,Go! were sold in the first two months of this year.


DESKTOP PUBLISHING MARKET
Numbers in millions

Source: Dataquest

Boston Software Publishers, an eight-employee firm whose MacPublisher, introduced in February 1985, was the first Mac desktop-publishing software, is at the other end of the spectrum. President Craig Costigan says he estimates between 18,000 and 24,000 copies of MacPublisher have been sold.

Despite competitor Letraset's imposing size, Costigan says he does not expect Letraset to succeed in the software business because the company simply does not know enough about desktop publishing. "They're a Fortune 500 company manned with people who sell file folders," is his caustic summary of the company. He predicts that Letraset will unload Ready,Set,Go! 3 the way it did MacPublisher.

Orange Micro Inc., the Anaheim, Calif.-based makers of Ragtime, and Quark Inc., the

See PUBLISHING, Page 14

PC software developers taking greater interest in Macintosh market

STEPHEN E. CUMMINGS
Special to MacWeek

Interest in the Macintosh software market is growing steadily among software companies that have traditionally concentrated on products for IBM PCs and compatibles.

The three firms with the lion's share of the microcomputer software market, each with over $200 million in annual revenues, all currently have or plan to get Macintosh products.

Microsoft Corp. of Redmond, Wash., the supplier of the PC-DOS/MS-DOS operating system required by every IBM-compatible micro, also is a well-established Macintosh software vendor. After an early attempt to break into the Macintosh market with Jazz, Lotus Development Corp. of Cambridge, Mass., is launching a major new integrated product dubbed Galaxy and is "thinking very seriously about doing more," according to Adam Hertz, Lotus' manager of Macintosh software development. And Ashton-Tate of Torrance, Calif., has announced a Macintosh version of its best-selling dBASE database software.

On the other hand, few small-to-middle-sized software firms in the PC software marketplace have publicly committed themselves to developing Macintosh products. However, while some of these firms have decided against entering the Macintosh market, many are considering such a move, according to observers and software company representatives.

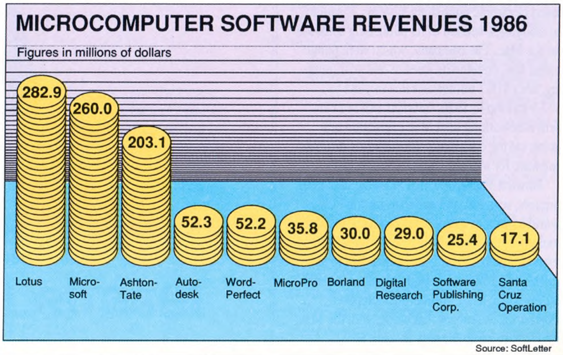
"I think there's a lot of interest in the Macintosh among PC developers," says Jeffrey Tarter, editor and publisher of SoftLetter, a software industry newsletter based in Cambridge, Mass. "I ran into a lot of them at Macworld [Expo] in January, and they were walking around with their tongues hanging out because of what the Mac can do."

Similar enthusiasm among PC software developers for the Macintosh was reported by Hertz of Lotus. When a prototype of Galaxy was demonstrated at a recent conference given by Lotus for third-party developers of PC software, "a lot of people were very interested in Macintosh development," Hertz says.

One of the largest players in the PC graphics market, however, has decided against developing for the Macintosh. "We've pretty much dedicated ourselves to the IBM and IBM-like marketplace," says Art Hyzer, president of ZSoft Corp. of Marietta, Ga., maker of PC Paintbrush, a PC-based graphics program.

"It just makes good business sense. There's something like 8 to 9 million PCs out there, but you've only got half a million Macs or so. Our installed base of PC Paintbrush is about equal

See PC-TO-MAC, Page 15


MICROCOMPUTER SOFTWARE REVENUES 1986
Figures in millions of dollars

Source: SoftLetter

TEMPEST

Continued from Page 13

sources. Security modifications bring the unit's weight to 26 pounds. The ARC Tempest model is available as a 512K enhanced Mac with a 128-Kbyte ROM and two double-sided, 800-Kbyte disk drives. It has a list price of $6,250.

Most significent is the addition of ARC's Tempest LaserWriter to the National Security Agency's preferred products list, allowing complete desktop-publishing in classified military and intelligence applications. The machine's appearance has been preserved, with lead shielding and electronic suppression added to the printer's upper body behind the standard chassis. The unit, available since January, weighs 77 pounds and lists for $10,950.

To complete ARC's Macintosh-based secure-office computer system, Tempest AppleTalk networks are available at $250 per connector. Also available is a Tempest 3Com Network Server — with a 16-Mbyte tape backup, one to three 70-Mbyte disk drives, a 3-Mbyte add-on memory unit, and serial and parallel ports — that costs between $19,500 and $30,000. ARC plans to offer a Tempest Mac II by the end of 1987.

Despite vendors' interest in Tempest Macintoshes, the most important indicator will be Apple's stance toward security and government sales.

"Apple has only started an aggressive move toward government [sales] in the last six months.," says Tim Bajarin, executive vice president of Creative Strategies of Santa Clara, Calif. "Obviously, if Apple wants a shot at government contracts it needs Tempest. But you don't need that to get into the U.S. Post Office."

"In general, commercial users would be pleased to have a secured terminal," says security consultant Cheryl W. Helsing of San Francisco. The strict Department of Defense standards are overkill for business, she says, but with less than $100 worth of equipment an intruder can read a terminal display. "I think it would be nice if all equipment were free of the problems of knowledge-bearing emissions." ■

PUBLISHING

Continued from Page 13

Denver-based manufacturer of XPress, are two other large software makers in the field.

Like most manufacturers, the firms keep sales figures quiet. Orange Micro, founded in 1980 as a hardware maker that also makes printer interfaces, will say only that it has sold over half a million products into the Macintosh market since the company began.

Apple has most of the hardware market to itself, but there is a sizable scanner market with several major players. Microtek of Gardena, Calif., sells scanners under its own name and also distributes them to numerous companies in the Mac and PC worlds, including Packard-Bell, Taxan and Abaton Technologies. The firm, founded in 1981, introduced its first scanner in 1984.

Microtek cites studies by Dataquest and International Data Corp. of Framingham, Mass., naming it market leader in the scanner field. IDC, according to Microtek, says the firm had 31 percent of the scanner market, while Dataquest gave it a 40-percent share. The figures are not broken down into the Mac and IBM markets, but Microtek says sales of the scanners were tilted toward the Mac environment in 1986. Abaton also is considered to have an ample share of the market.

On the low-cost scanner side, Thunderware Inc. of Orinda, Calif., manufacturer of the Thunderscan scanner, is a leader. The firm, with fewer than 60 employees, will say only that it has sold "tens of thousands" of scanners since it introduced the Thunderscan in 1984.

Because Mac desktop publishing is a growing but volatile market, other publishing firms are considering testing the waters. Interleaf of Cambridge, Mass., which sells minicomputer-based electronic publishing systems, is said to be readying a version of its publishing software for the Mac. The company, which went public a year ago, doubled its sales in one year, jumping from $18.7 million in sales in 1985 to $37.1 million in 1986. Interleaf will not confirm it is working on a Mac pagination program, saying only that it will write publishing software for a microcomputer this year.

Hewlett-Packard, which manufactures laser printers, scanners and software for the PC world as well as many other products, also is looking at the Macintosh desktop-publishing market. The business giant, which had total sales of $7.1 billion in 1986, has announced it will produce a laser printer that supports PostScript. A scanner that works with the Macintosh may be on the way as well. ■

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The technically inclined will be pleased to note that it has

PC TO MAC

Continued from Page 13

to the total number of Macintoshes," Hyzer says.

The advantage held by the PC compatibles has not, however, discouraged industry-leader Lotus from addressing the Macintosh market.

"Many of our very important customers have already started to acquire Macs or are considering them. To make sure that we continue to serve those customers, we have to be in that market," Lotus' Hertz says.

Two other microcomputer software companies in the SoftLetter Top 10 for sales in 1986 offer or plan Macintosh software. Borland International of Scotts Valley, Calif., offers several well-known Macintosh products, including SideKick and Reflex. WordPerfect Inc. of Orem, Utah, is readying a Macintosh version of its namesake best-selling PC word processor for fall release. In addition, the company has plans for more Mac products, probably to include both utilities and full-scale applications, according to Roger Bell, product manager for Macintosh WordPerfect.

Other members of the Top 10 say they are either not planning Macintosh products or will not reveal their Mac strategy. Spokesmen for Digital Research Inc. of Monterey, Calif.; Software Publishing Corp. of Mountain View, Calif.; and The Santa Cruz Operation of Santa Cruz, Calif., all say their firms have no plans to develop Macintosh software. Representatives of Autodesk Inc. of Sausalito, Calif., which markets the top-selling line of computer-aided design software for the PC, refuse to comment on potential development efforts involving the Macintosh.

Micropro, publisher of the popular WordStar word-processing program, has "no current short-term plans to enter the Macintosh market, but we're watching it very closely," says Lee Lensky, Micropro product manager.

"We are a business software company, and the decision has to do with the Mac's penetration of the traditional business market; it's a matter of reaching a critical mass," Lensky says.

Although he says the San Rafael-based company has not yet determined that this "critical mass" has been reached, Lensky points to Apple's decision to create a separate company to market Macintosh software as a sign that the Macintosh software market is viable. He also says that "our president is a big Macintosh user."

One successful microcomputer software firm, Computer Associates Inc., did not make the SoftLetter Top 10 because the bulk of its sales are in the mainframe arena. The San Jose-based company has traditionally added new software titles by acquiring smaller firms rather than developing products from scratch. According to a spokeswoman, Computer Associates has just acquired its first Macintosh title, the BPI accounting package.

Among smaller firms, Symantec of Cupertino, Calif., publishers of Q&A, a well-regarded information management software package for PCs, has not officially announced a Macintosh product. However, Gordon Eubanks, Symantec's president and CEO, says, "I've said publicly a number of times that we're very interested in the Macintosh. You can deduce from that what you might."

In addition to the increasing corporate acceptance of the Macintosh, Eubanks says technological improvements in the Macintosh have made it a better computer for which to develop software. "The Mac today is a fundamentally different machine from the 128K version. If the machine hadn't improved, we wouldn't be nearly as enthusiastic," he says.

SeaSide Software is actively considering a Macintosh version of its popular free-form text-based information manager called askSam. "We would really like to get askSam running on the Mac. It ought to be a real screamer, and we often have Macintosh users calling to ask whether we have a Mac version," says Mike McKinney, vice president of the Perry, Fla.-based company.

"We've talked to a couple of different companies about translating the program to the Macintosh, but so far we haven't made a decision," he says.

In some cases, the impending introduction of IBM's new microcomputer operating system, OS/2, will require revisions in existing PC software, stalling plans to migrate PC applications to the Macintosh. A case in point is Micrografx, of Richardson, Texas, maker of Windows Draw, a sophisticated drawing package for the PC.

"The possibility definitely exists that we'll develop a Macintosh product, but for the moment OS/2 is putting some unexpected demands on our development efforts. We've had to postpone our Mac development for a while," says J. Paul Grayson, Micrografx's chairman and CEO. ■

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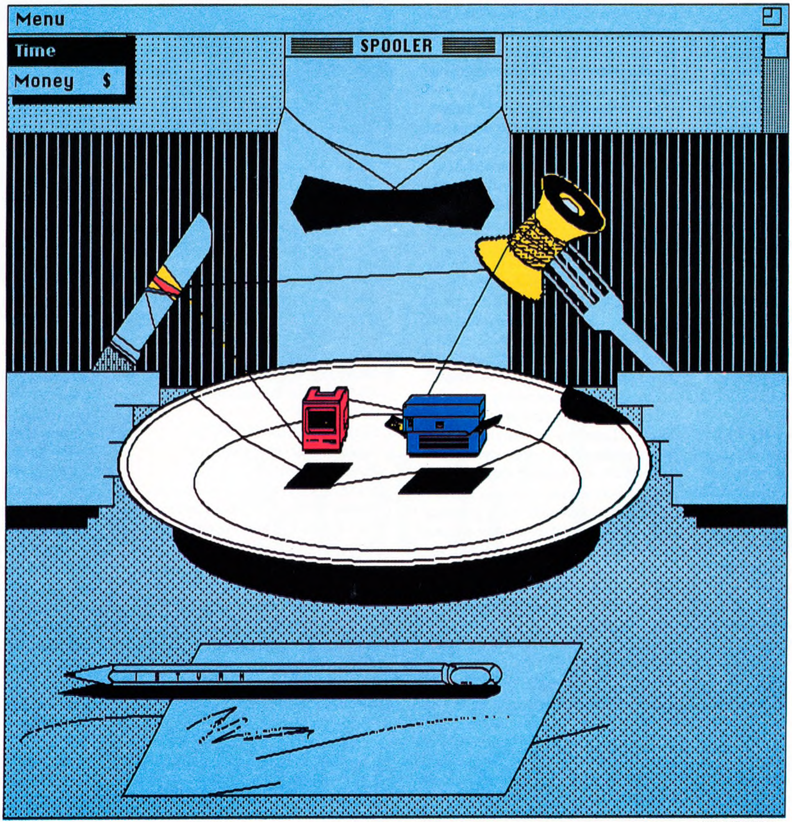

ISTVAN BANYAI

CUTTING OUT THE WAIT

Print-spooling programs reduce time spent laser printing

In the early days of computing, "spool" stood for "Simultaneous Peripheral Operations On-Line." In the age of the LaserWriter, it stands for fewer delays and higher productivity throughout the office.

BY RICK LEPAGE
MacWEEK Staff

One of the most frequently heard complaints about printing from the Macintosh to the LaserWriter is the time it takes. Every time a document is sent to the printer, the computer must translate the file into the PostScript page-description language, then send that complex code piece by piece to the LaserWriter, then wait for the printer to interpret the code and generate the image.

As desktop publishers know well, a document that is long or complex — especially one that includes bit-mapped graphics — can easily tie up a Macintosh for many minutes. And if the LaserWriter is on a network with many computers attached, the problem is compounded because each user who attempts to print must wait, Macintosh immobilized, as every job previously dispatched to the printer is processed. One user printing a large document can cause a traffic jam that reduces an entire office to long periods of inactivity, translating into lost productivity. Or each user can play a familiar guessing game: cancelling the Print command and then at intervals dropping other work to try again in hopes of finding the printer free.

Because of the complexity of the Macintosh-LaserWriter interaction, the programming techniques that make background printing possible on other operating systems could not simply be ported over to the Macintosh. For some time, it appeared the only solution possible would be installing expensive hardware buffers to store print files. But Apple, working with several third-party developers, finally worked out a set of modifications to the Mac's System software and AppleTalk protocols that opened the door to software-based spooling.

Two early responses were LaserSpool from Mac America and LaserServe from Infosphere.

Then came programs promising even better performance: Think Technologies' LaserSpeed and SuperMac Software's SuperLaserSpool. These two packages, both recently updated, are the focus of this review. Both are well-designed products that dramatically reduce idle

Continued on next page

Continued from previous page

waiting time, though each has limitations that should also be considered.

Spooling

A printing job requires extensive communication between the Mac and the LaserWriter. Every time a Print command is given, the Mac queries the chosen LaserWriter on an AppleTalk network to determine whether the printer is in use. If not, it proceeds to translate the information (text, font, graphics and placement data) into PostScript and transmit it over AppleTalk to the printer. If the LaserWriter is busy, it logs the Print request until previous jobs are completed.

When the document finally gets its turn at the printer, the Mac makes sure that LaserPrep — a "dictionary" of common PostScript commands — has been installed in the LaserWriter RAM. Then the file is sent and the PostScript interpreter built into the LaserWriter proceeds to convert the information into instructions that govern the actual printing.

A spooler uses a portion of the Mac's RAM to handle the computer's end of this interaction in the background. The spooler intercepts the print data, stores it on disk in either PostScript or QuickDraw form, and then acts as a liaison with the LaserWriter. If the printer is busy, the spooler will queue up waiting files. Meanwhile, control of the Macintosh returns to the user, who can work on other documents or even move to another application.

While spooling does alleviate the waiting time formerly associated with PostScript printing, it can bring with it some performance problems. The Mac is not a multitasking machine, which means the CPU can work on only one operation at a time and the spooler competes with applications for the necessary processor time. A good spooler will minimize its disruptive effects by taking over the processor for only brief intervals. Otherwise, users will notice frequent "freezing" or slowness in redrawing the screen and responding to such events as mouse movements and typing. A spooler that gives the user's machine back quickly, but at the expense of poor performance, can be nearly as irritating as printing by the old, unspooled method.

The size of spooled files and the handling of errors also are important issues about spoolers. PostScript representations of documents are often larger in size — sometimes two or three times larger — than the original file being printed. Think Technologies' program, LaserSpeed, creates such files when spooling. SuperMac's SuperLaserSpool, in contrast, stores temporary representations based on the QuickDraw routines in the Mac ROM, which are not as complex as PostScript and, therefore, produce files smaller than the PostScript equivalent.

In normal printing from the Mac, LaserWriter status indicators and error warnings are passed back to the Mac screen. A spooler should not interfere with this error-handling system. It should be able to alert the user when a paper tray is empty or paper has jammmed, so that the user will not assume a file is being printed correctly when it is not.

Advanced features, such as the ability to change the order of printed documents, use downloadable (non-resident) printer fonts, set the priority of network Print requests, reset the LaserWriter and recover from non-spooler-related errors, also are important items to look at when considering a spooler.

Some programs, most notably Aldus' PageMaker, do not use the standard LaserWriter driver and Laser Prep dictionary to drive the printer, and buyers who use this application regularly will want a spooler that can cope with Aldus' custom alternative. And any spooler should offer a graceful method for bypassing the spooling process if for any reason it cannot handle a program's files.

Spoolers all try to achieve the same goal — giving the user control of his machine. How and how well they perform that task is what affects productivity.

LaserSpeed: Operation

LaserSpeed is designed to work automatically, with no explicit commands from the user. Setting up the program requires copying an installer program and a small file called Spooler (an INIT resource) into the System Folder, then double-clicking on the Installer icon, then rebooting. Thereafter, the spooler will be activated whenever the Macintosh is started from the disk with the spooler software installed. LaserSpeed works by converting a file to PostScript, storing the PostScript file on disk and then sending that file in the background to the printer.

The installer adds a Desk Accessory called LaserSpeed to the Apple menu. This Desk Accessory, used to control the spooler, is extremely simple but laden with features. It brings up a control box listing the names and applications of all currently spooled files in the order they are to be printed. If there are more files spooled than will fit in the window, scroll arrows appear to the right of the list box. Another part of the same window shows the status of the LaserWriter.

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Now you can print and use your Mac at the same time!
SUPERMAC SOFTWARE
LaserSpeed v1.5
ALSO WORKS WITH PAGEMAKER AND INBOX
THINK

PAUL MORRELL

The LaserSpeed and SuperLaserSpool are two options for saving time when printing on a LaserWriter.

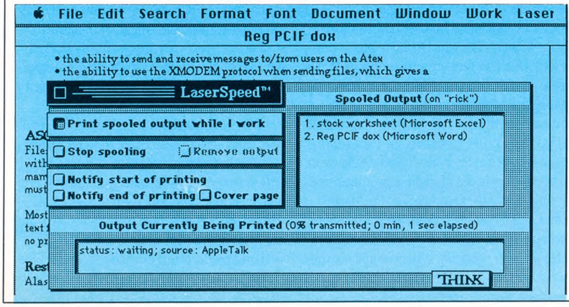
LaserSpeed

Think Technologies Inc. ☆ ☆ ☆ ☆
135 South Road, Bedford, Mass. 01730
(617) 275-4800
Single user: **$68** (street); **$99** (list)
Five-user: **$322** (street); **$495** (list)
Version reviewed: 1.5
Strengths: Prints in the background with minimal slowdown; excellent PostScript error handling; handles PageMaker files directly; can alert user when printing begins and ends.
Weaknesses: Spooled files are large; some advanced features are missing.

SuperLaserSpool

SuperMac Software ☆ ☆ ☆ ☆
295 N. Bernardo Ave., Mountain View, Calif. 94043; (415) 964-8884
Single-user : **$89** (street); **$149.95** (list)
Five-user: **$266** (street); **$395** (list)
Version reviewed: 1.1
Strengths: Fast spooling time; ability to set network priority and choose alternate printer; preview mode; prints to ImageWriter.
Weaknesses: Causes some slowdown in background mode; cannot handle PageMaker 2.0 files completely; poor PostScript error handling.

LaserSpeed's Desk Accessory has a LaserWriter status window and will tell userswhen documentsare printed.



• the ability to send and receive messages to/from users on the Atex
• the ability to use the XMODEM protocol when sending files, which gives a

☑ Print spooled output while I work
☐ Stop spooling ☐ Remove output
☐ Notify start of printing
☐ Notify end of printing ☐ Cover page

Spooled Output (on "rick")
1. stock worksheet (Microsoft Excel)
2. Reg PCIF dox (Microsoft Word)

Output Currently Being Printed (0% transmitted; 0 min, 1 sec elapsed)
status: waiting; source: AppleTalk

By default, all print jobs are spooled and then printed as soon as the LaserWriter is free. But spooling can be turned off from the Desk Accessory. Printing of spooled files can be suspended until the "Print while I work" button is checked again.

Other buttons instruct LaserSpeed to notify the user that a document has started printing, as well as when it is finished — a helpful feature for users eager to pick up completed copy. Like the regular LaserWriter Print dialog box, LaserSpeed lets the user ask for a cover page, with user name, file name, date and time, to identify the document as it emerges from the printer.

To change the order of files being printed, the user need only select a file name and drag it to the desired position. To delete a spooled file, simply click on the file name — or with the Shift key down click on multiple files — and select the Remove Output button. LaserSpeed presents no warning dialog, however, so inadvertently deleted print files will have to be spooled again.

When the LaserSpeed Desk Accessory is active, a new menu appears on the menu bar. From this menu the LaserWriter can be reset, and either Laser Prep or Aldus Prep (for PageMaker) can be installed in the printer. Other commands let the user change the drive to which print files are spooled or instruct LaserSpeed to store actual PostScript files, an option designed for programs like JustText that bypass the Apple Print Manager and generate page-description code directly. Finally, a command added to the new Version 1.5 lets users toggle on or off the appearance of a flashing LaserWriter icon that indicates the presence of spooled data. The icon was always present in earlier versions of LaserSpeed.

When a Print command is issued, a window resembling the familiar LaserWriter status box appears on the screen, informing the user that LaserSpeed is recording the output. Spooled files get special names indicating that they are LaserSpeed files; they are invisible from the desktop or other applications. As each file is printed, the spooled file is deleted from the disk.

When LaserSpeed is printing a file, it checks the LaserWriter to verify that the appropriate dictionary — Laser or Aldus Prep — is loaded into the printer. If the file is not present, the program presents a dialog box indicating that the LaserWriter must be prepared before printing can continue. The Desk Accessory must then be called up and the dictionary loaded via the Prep Laser or Prep Aldus menu items. After this the LaserWriter ordinarily will not need to be prepared again until it is turned off or reset.

LaserSpeed was able to print from every application we tried, even those programs that do not use Laser Prep or the standard Print Manager. PageMaker 2.0 files spooled and printed correctly, as did ProVUE Development Corp.'s OverVUE, Adobe Illustrator and Knowledge Engineering's JustText.

SuperLaserSpool: Operation

SuperLaserSpool is similar in function and in much of its interface to LaserSpeed, but it uses very different techniques to achieve similar results. While the Think Technologies' product spools PostScript code, SuperMac Software's spooler does not. It creates files built out of QuickDraw, the series of ROM routines that drive the Mac. As a result, SuperLaserSpool offers spooling not only to LaserWriters but also to non-PostScript devices — in particular, ImageWriters — connected directly to the Mac through the modem port only or indirectly via an AppleTalk network.

SuperLaserSpool also differs from its competitor in being an application, not an INIT resource. That means it must be double-clicked to activate the spooling function, but with the Finder's Set Startup command it can be configured to load automatically. While the program installs, the user can specify the amount of RAM to be allocated to the buffer it creates. There also is an option to choose another program to be launched after the spooler has loaded, as opposed to returning to the Finder.

Once SuperLaserSpool has been run, spooling is immediately available. The program creates a folder called SLS Spool Files, where files to be printed are placed. It also makes a copy of the LaserWriter driver — and ImageWriter, when necessary — which it uses in place of the actual driver.

SuperLaserSpool comes with a Desk Accessory called LaserQueue. Similar in most of its functions to Think's LaserSpeed Desk Accessory, it includes a file list and LaserWriter status windows. Print files are listed in the order spooled, and users can change the order or delete a file in the same manner as in LaserSpeed. SuperLaserSpool, however, does display a warning dialog box when a file is about to be deleted.

LaserQueue also allows the spooler files to accumulate on disk by clicking on the Pause button. All spooled files will be held in the SLS Spool Files folder until the Resume button is clicked. This method, which both programs share, is helpful for people who have a lot of output to print but do not want to worry about performance degradation. The spooler also can be de-installed and reinstalled any time thereafter, as long as the machine remains on. If the Mac is shut down, the application will have to be relaunched before spooling will work again.

SuperMac's LaserQueue Desk Accessory adds a few useful features not found in the rival product: a Preview mode and an option that lets users set printing priority.

The Preview feature presents an image, either reduced or full-sized, of any file selected from the queue box. "Mini-arrows" at the bottom of the page allow scrolling through multipage documents. This feature, however, does not work with programs that generate PostScript, like Illustrator and PageMaker.

The Network Priority feature can help users get urgent jobs out quickly, without having to wonder about their place in line on an AppleTalk network. Any job sent while the "High Priority" button is set will override any other jobs queued up by other users on the network, whether or not they are using a spooler. If more than one user has the "High Priority" option set, then jobs are printed in the order received but still ahead of "Normal" requests. Jobs sent with "Low Priority" work in reverse — they are held until all other waiting jobs are printed. Most users will, or at any rate should, set their priority to "Normal," reserving "High" for those documents that have to be printed immediately.

SuperLaserSpool itself does not give any sign that a file is being spooled after a Print request has been initiated, other than the fact that there is no LaserWriter status box on the screen. It also has no indicator that background printing is in progress. SuperLaserSpool will, however, automatically download the Laser Prep file as needed, without user intervention.

SuperLaserSpool was able to print from nearly every application we tried, including OverVUE, Illustrator and JustText. The lone problem we had — and for many users it will be a serious one — was with PageMaker 2.0, which bypasses Apple's LaserWriter software and uses its own. When we printed a PageMaker document with SuperLaserSpool active, printing proceeded as if we were not using a spooler at all.

PageMaker's Print dialog does include an option to use the standard LaserWriter files instead of Aldus' In that mode PageMaker files are spoolable with SuperLaserSpool, but the advantages of using the Aldus driver with PageMaker documents — more downloadable fonts, better letter spacing and better printing of some graphics and special effects — are lost.

File size

The difference in the spooling techniques employed by the two programs has a significant effect on the size of spooled files. The PostScript files LaserSpeed creates can be twice as large as the file being printed, or even

Continued on next page

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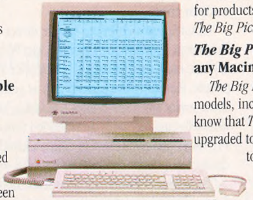

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Continued from previous page

larger. If disk space is not plentiful, this can become a major problem. When many documents are to be spooled, or even just a few large ones, a hard disk will be necessary, though the spooler will work with floppy disks.

SuperLaserSpool's QuickDraw files, on the other hand, are much smaller. In most cases the spooler file's size was the same as the original file's, or even slightly smaller. Applications that are primarily graphics-based, however, will have larger spool files.

Perfomance

SuperLaserSpool, using the QuickDraw scheme, can spool files much faster than LaserSpeed, which must take the time to convert files to PostScript. The speed at which SuperLaserSpool returns control of the Mac to the user is impressive, in some cases even astonishing. (See chart on this page).

LaserSpeed also spools files quickly but almost always in proportion to the complexity of the document and never as fast as SuperLaserSpool did. It should be emphasized, though, that both products perform more than adequately. Either represents a vast improvement over direct printing.

> "It is hard to pick a winner. Either LaserSpeed or SuperLaserSpool will take away most of the irritation of unspooled printing."

As mentioned earlier, spooling is a two-step process. How well the background printing is handled affects the performance of the user's machine. In the case of SuperLaserSpool, the trade-off to recording QuickDraw is that the program must perform the conversion to PostScript later, in the background.

This results in more slowdown in other operations than we would have liked. At times, while the background task took over, we had the feeling that the Mac was full of molasses. When we were typing, everything would sometimes stop for a second or two, and then characters would appear in bursts on the screen. We never lost what we had typed, but it was irritating.

LaserSpeed, on the other hand, managed background printing less obtrusively than SuperLaserSpool. The spooler took control of the Mac only rarely and nearly instantaneously, and otherwise we noticed scarcely any slowdown.

One test we tried was to use a game that called for constant movement on the screen. With SuperLaserSpool printing in the background, the game moved more slowly, with more frequent stops of action. With LaserSpeed at work, movement on the screen also halted in a few instances, but these periods were shorter and less frequent than with SuperLaserSpool.

Another test we tried was to download files with a telecommunications program while spooling. In most instances it took appreciably longer to download the same file while using SuperLaserSpool than LaserSpeed. Neither spooler caused aborted or incomplete transmissions, however, and neither caused slowdowns significant enough to make us question the value of the products.

Error handling

We were much more impressed with LaserSpeed's error-handling features than with SuperLaserSpool's. Whenever a LaserWriter error occurs, LaserSpeed gives users a dialog box indicating such problems as an empty paper tray, a paper jam or a PostScript error, for example. This allows a problem to be corrected immediately, without any need to open the Desk Accessory and check the LaserWriter status box to find out what went wrong.

SuperLaserSpool, on the other hand, simply beeps at about 10- to 15-second intervals when an error condition exists. We consider this method much less desirable than Think Technologies' approach because there is nothing to distinguish the spooler's beep from a beep within an application and nothing that explains the nature of the difficulty.

We were unable to crash either spooler directly, even when printing very complex documents. If we shut down the Macintosh while printing was in process, both programs were able to start printing those documents — from the beginning, not from the last printed page — that were in process when the shutdown occurred. LaserSpeed asked upon restart whether the user wished to continue printing spooled output, while SuperLaserSpool automatically started over.

Special features

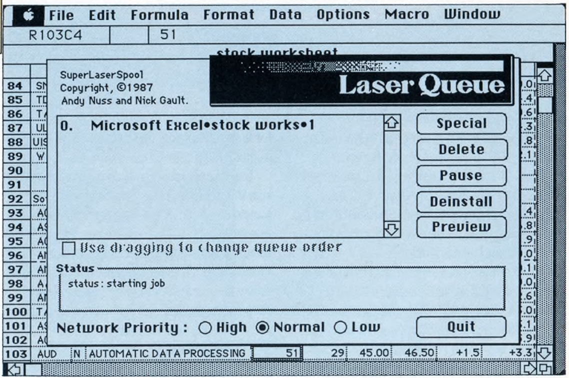
Both SuperLaserSpool and LaserSpeed offer most of the features that are desirable in a spooler. Both correctly print documents that contain downloadable PostScript fonts. As long as the fonts in question are available in the System Folder of the spooler's disk, each spooler will download the appropriate fonts when necessary.

LaserSpeed has some useful features lacking in SuperLaserSpool. The option of being alerted at the beginning or ending of a print job is particularly helpful for documents that need to be manually fed through the printer. SuperLaserSpool gives no indication that the file is ready to print.

LaserSpeed's ability to handle direct PostScript files and to reset the LaserWriter also are nice, though of less importance to most people. Resetting the LaserWriter is good for those times when the printer's RAM is loaded nearly to capacity with downloaded fonts or Prep files and a return to normal printing is desired.

Spooling of PostScript files is useful in fewer situations, but PostScript programmers or those who use applications that can create a PostScript file directly may find this option extremely valuable.

SuperLaserSpool, while not offering those features, does offer the network priority settings, variable buffer size, on-line help and the Preview option. Though the network priority settings can be abused — by all users setting priority to "High" — it can be very useful in well-behaved work groups.



SuperLaserSpool
Copyright, ©1987
Andy Nuss and Nick Gault.

0. Microsoft Excel•stock works•1

☐ Use dragging to change queue order

Status
status: starting job

Network Priority : ○ High ● Normal ○ Low

103 AUD N AUTOMATIC DATA PROCESSING 51 29 45.00 46.50 +1.5 +3.3

SuperLaserSpool's Desk Accessory allows users to set printing priority and preview documents before printing.

Among the alternate buffer sizes, the "Small" setting will aid users with limited RAM available, while those printing many files or especially complex documents may find the "Large" size worthwhile. We found, however, that SuperLaserSpool was able to handle all of our printing tasks with the "Normal" buffer.

SuperLaserSpool's Help screens are fairly complete and useful, but rarely necessary once users are up to speed. The Preview feature, unique to SuperLaserSpool, is intriguing, though less useful than a similar function within an application, where changes can be made immediately.

SuperLaserSpool offers several other welcome features. The Spool Disk and Magic Folder options let users choose the disk and folder to which spooled output will be sent. These two options make it possible for users on a file-server network to spool files to one user, who can monitor and prioritize the printing process for an entire work group. LaserSpeed offers the ability to spool to an alternate disk, but printing is always performed by the originating machine.

Finally, SuperLaserSpool lets the user choose a backup printer in case the primary LaserWriter is tied up for long periods of time. If SuperLaserSpool finds that the first-choice printer is tied up, it automatically attempts to print to the auxiliary printer, returning to the first printer if it too is busy.

Conclusions

It is hard to pick a clear-cut winner. LaserSpeed carries a lower price for a single user; SuperLaserSpool is more economical in the five-pack. LaserSpeed offers the more elegant interface, excellent background printing, full support for PageMaker and better error-handling features, at the expense of disk space and a slower spooling speed than SuperLaserSpool.

SuperLaserSpool, while spooling files incredibly quickly and in a compact form, does produce some slowdown in other Mac operations when it is performing the actual printing in the background. Its inability to handle PageMaker files correctly might restrict its value in some settings, but there are a lot of users who do not have that need or who are willing to bypass the Aldus printer driver.

In terms of features, SuperLaserSpool comes out ahead, especially with the backup printer, network priority and preview functions. If these are not necessary and users have plenty of disk space, then LaserSpeed is probably the better choice, especially given its advanced error-handling features.

In most instances, however, either program would take away much of the irritation and lost productivity of unspooled printing. ■

SPOOLING PERFORMANCE

Application	Unspooled	LaserSpeed	SuperLaserSpeed
Word 3.0 (8 pp. - 19K file)			
spooling time (min.)*	2:45	0:39	0:13
spooled file size	n/a	40K	19K
Excel 1.04 (36 pp. - 169K file)			
spooling time (min.)	50:49	7:44	1:52
spooled file size	n/a	701K	168K
PageMaker 2.0 (15 pp. - 100K file)			
spooling time (min.)	6:07	1:29	0:53**
spooled file size	n/a	112K	86K
Superpaint 1.0 (1 page - 29K file)			
spooling time (min.)	6:34	0:37	0:11
spooled file size	n/a	176K	39K

*Spooling time represents the actual time the Macintosh is tied up during the print process.

** SuperLaserSpool was unable to spool PageMaker 2.0 files using Aldus Prep. The spooling time is for a file that uses Apples Laser Prep instead.

n/a When printing documents directly to the LaserWriter, a secondary file is not created in most instances, though some applications might create temporary scratch files.

Focus: Planned purchases

BY BILL LANGENES
Creative Strategies

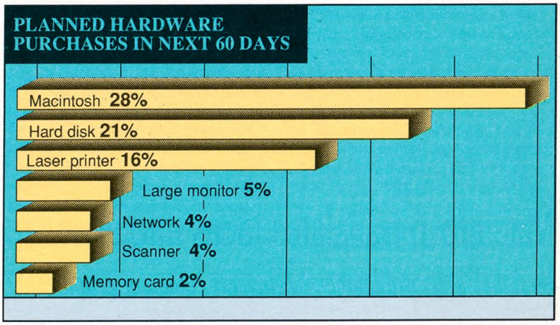
Sales of Macintosh hardware and software will be brisk during the summer months, according to a recent telephone survey of MacWEEK readers by Creative Strategies Research of San Jose, Calif.

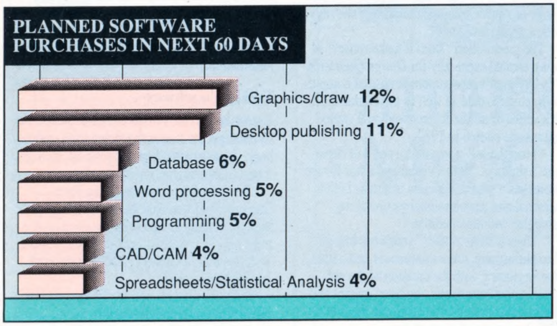
More than three-fourths of the respondents — 77 percent — plan to buy at least one hardware product and 67 percent plan to purchase software during the next two months. Macintosh computers top the list of items respondents plan to buy: 24 percent intend to get one by August.

Among the prospective Macintosh buyers, 63 percent said they will opt for the Macintosh II, 25 percent plan to buy the Macintosh SE and the remainder said they will choose a Mac Plus.

Twenty percent of users surveyed said they will be purchasing hard disk drives, while 16 percent intend to buy laser printers in the next two months.

The average retail price of each planned hardware purchase is $3,102.


PLANNED HARDWARE PURCHASES IN NEXT 60 DAYS


PLANNED SOFTWARE PURCHASES IN NEXT 60 DAYS

Graphics software high on users' lists

Two-thirds of those surveyed plan to buy at least one program by August.

Graphics and desktop-publishing software were first and second, respectively, on respondents' shopping lists: 12 percent say they intend to buy graphics software, including drawing, painting and related programs, while 11 percent say they plan to buy desktop-publishing software.

These categories were followed by database software (6 percent), word processing (5 percent), programming languages (5 percent), CAD/CAM (4 percent), numerical analysis (4 percent), network and connectivity (3 percent), communications (2 percent), accounting (2 percent), outlining (2 percent), and downloadable fonts (2 percent).

This survey is conducted exclusively for MacWEEK by Creative Strategies Research, a high-technology research and consulting firm based in Santa Clara, Calif. For this survey, a random sample of U.S. corporate and other volume users were selected from the MacWEEK subscriber database. Respondents were surveyed by telephone during the last week of May. A total of 301 usable reponses were obtained with a projected response rate of 50 percent. The industries and geographical distribution represented in the sampling are reflective of general U.S. demographics.

CALENDAR

JULY

13-14 — **Computer-Aided Engineering: The Many Faces of CAE** (San Francisco)
Intended for CAE users, vendors, investors and product planners, the conference will provide a perspective on the CAE industry. Will include an overview of CAE on workstations in general and the Macintosh. Contact: Yvonne Chism at Frost and Sullivan, (212) 233-1080.

13-17 — **American Association for Artificial Intelligence Show** (Seattle)
Technical sessions on AI research, tutorials on the wide-range of AI applications and exhibition. Sun Microsystems is expected to make several new product announcements. Contact: AAAI in Menlo Park, Calif., (415) 328-3123.

16-17 — **Electronic Publishing: Strategies, Applications and Systems** (Washington)
Seminar and live demonstrations sponsored by Datapro Research Corp. and involving systems and approaches to publishing for small to large businesses. Contact: Datapro Research Corp., (800) 328-2776.

19-21 — **Desktop Publishing: A Practical Tutorial** (San Francisco)
Presented by Digital Consulting Inc., the tutorial will feature product comparisons and practical instruction. Call: San Francisco Airport Marriott, (415) 692-9100.

20-23 — **The Federal Desktop-Publishing Conference and Product Showcase** (Washington)
Sponsored by the Association of Federal Computer Users, conference includes exhibitions and tutorials with an explanatory introduction to desktop publishing. Contact: FDPC coordinator, (703) 845-1657.

21-23 — **The Desktop Publishing Conference** (Arlington, Va.)
Includes 30 exhibitors from Apple to Xerox, tutorials, a vendor showcase and a 300-page complimentary desktop-publishing encyclopedia and buyer's guide. Contact: Jerry Standig at The JLS Group, (703) 642-1332.

22-23 — **National Fincom: National Financial and Computer Automation Conference** (New York)
Conference and exhibition about automation systems in the financial industry. Aimed at bankers, securities professionals and computer specialists in the banking field. Contact: (800) 237-7601 or in New Jersey, (201) 569-6474.

22-24 — **Microtrends '87** (New York)
Conference includes exhibits and sessions on educational trends and technology, copyright guidelines, networking and market update. Intended for people in the microcomputer industry. Contact: International Communications Industries Association, (703) 273-7206.

27-31 — **ACM Siggraph '87** (Anaheim, Calif.)
Exhibition featuring 250 computer graphics companies and their wares. Show also includes panel session, tutorials and video shows on computer graphics applications. Contact: Ellen Frisbie, (312) 644-6610.

AUGUST

2-4 — **Recognition Technologies Users Association Exposition** (San Francisco)
Exposition on recognition technologies equipment, supplies and services, including telecommunications equipment, optical character recognition and image processing equipment. Contact: Robert Jakubowicz, (802) 362-4151.

5-7 — **The Seybold Group's Desktop Productivity Conference** (Boston)
Aimed at senior executives and upper-level managers interested in information systems, data processing, communications, corporate planning, finance and office automation. Contact: The Seybold Group, (408) 297-0888.

6-9 — **Extending the Human Mind: Computers in Education** (Eugene, Ore.)
Intended for educators, administrators and software developers, conference includes 56 special interest sessions, review labs, exhibitors and hands-on workshops for the Apple IIe and the Macintosh. Contact: University of Oregon Continuation Center, (503) 686-3537.

9-11 — **Spocade III CAD/CAE/CIM Conference** (Coeur D'Alene, Idaho)
Sponsored by Spocad, conference includes more than 50 exhibitors, and tutorials and panel discussions about products, new applications and market trends. Contact: Spocad, (509) 484-6812.

10-14 — **NCGA Computer and Art Design Conference** (Chicago)
Seminars and hands-on presentations for Apple, Macintosh and Omega computers featuring graphics applications for the fine arts, including dance, theater and music. Contact: Toni Grainer, (703) 698-9600.

11-13 — **Macworld Expo** (Boston)
Business, business programming, desktop publishing and desktop engineering interests will be addressed; desktop publishing and networking seminars. Contact: Deborah Paul, (617) 329-7466.

17-20 — **National Computer Graphics Association CAD/CAM Conference** (Boston)
Exhibit and conference for educators, researchers and vendors involved in computer graphics. Contact: NCGA, (800) 225-NCGA.

31 — **Building Strategic Advantage Through Computing** (Chicago)
One-day seminar addresses the challenges faced by information systems executives and the business strategies driving information technologies. Contact: Digital Consulting, Inc. at (617) 470-3880.

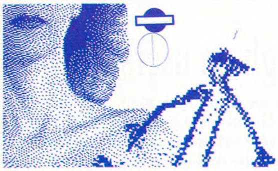
Send calendar events to: Clair Whitmer, MacWEEK Calendar, 525 Brannan St., San Francisco, Calif. 94107.

Macintosh translates ideas into art

Designer's 'hybrid imagery' reinvents computer graphics

COURTESY APRIL GREIMAN INC

Greiman is one of the few designers creating prophetic work.



BY ELINOR CRAIG
MacWEEK Staff

LOS ANGELES — April Greiman, a small, red-haired woman, and the reigning queen of computer design, walks down a long cement hallway toward the office where her Apple LaserWriter has been printing all night.

She is in for a nasty surprise.

Greiman uses her Mac to design spaces, textiles, furniture and ad campaigns, and her time is as big (and expensive) as it comes. Her list of clients includes ESPRIT (for which she used her Mac to story board a television ad), Xerox, Sebastian hair products and the 1984 Summer Olympics in Los Angeles.

"The Mac is one of the most important tools I have used since I've been in design," she says, eyes flashing.

Mother of new-wave design

Greiman, 38, is one of a slim 10 percent of women elected to the prestigious Alliance Graphique Internationale, a highly selective international organization of graphic designers. She is also a VIP with the local chapters of the American Institute of Graphic Artists and the Art Directors Club of Los Angeles.

Most of the time, she uses her talents and computer for strictly commercial purposes, but this morning she is in her fine-arts mode. For months she has been pushing the cutting edge of the technology, working on a complex, computerized, 6-foot collage/self-portrait for *Design Quarterly*, a prestigious architecture and design magazine published for the Walker Art Institute by the Massachusetts Institute of Technology. With any luck, the finished printout is waiting behind her office door.

Greiman unlocks the door, walks to the LaserWriter and looks down at exactly one-half of her nude, full-length, self-portrait. It was supposed to be whole.

In her work space, part of a honeycomb of artists' lofts and studios in downtown Los Angeles, Greiman studies her piece, sipping a cup of coffee with equanimity. Her office, a physical manifestation of her design sense, is full of geometric shapes: tables, chairs, lamps and shelves in lemon yellow, chartreuse, sky blue and red. It is just another morning after yet another late night with her Macintosh — and far from her first technical disaster.

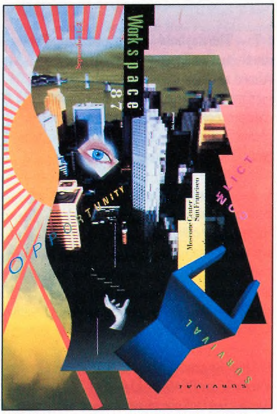
Hailed as the mother of "new-wave design," Greiman is known for introducing exaggerated letter spacing, floating geometric shapes and warm, rich colors to the graphics world in the late 1970s. Her radical design departures were both fiercely rejected and heartily welcomed. Today, she is recognized by public and peers alike as the guiding force she has become — as much for her use of computerized design techniques as for the designs themselves.

Zen dreams and MacDraw

"The genius of MacDraw," she says, "is that you can input an image, idea, object and then literally stretch it on screen from a few inches to a few feet in a matter of seconds. You can compose an entire 4-by-8-foot image right in front of you, altering, adding, layering, trying different compositions, changing meaning and form with a click of the mouse."

Greiman used MacDraw, MacVision and PageMaker to create her self-portrait, a 6-foot-long collage of images floating over and around a full-length photo of her body. After layering image over image, Greiman finally left for the night, leaving her LaserWriter to print out a computer chef d'oeuvre.

But now, while everything layered on top of her body has printed as plain as day, only her upper half has been reproduced. Greiman does not seem unduly upset; once again she is faced with capricious technology.



COURTESY APRIL GREIMAN INC

Hybrid imagery: Poster designed with Mac, Paintbox.

"So, somewhere, near the planet Pluto, we believe, a 5-foot-4-and-one-half-inch digitized image of April Greiman is orbiting," she says with a mysterious smile.

The piece, titled "Does it make sense?" is being created especially for *Design Quarterly*. It is Greiman's most ambitious use of computer graphics to date as well as the culmination of a series of aesthetic, technological explorations she started in 1982.

"I use the self-portrait as a point of departure," she says. "It is a visual metaphor for the project as a whole, which is meant as both a personal and a professional record of my struggles with the medium."

"Does it make sense?" combines bits of Zen philosophy, dream sequences and a time line beginning with the creation of the universe with photographs, digitized images and bright color designs, transforming them into a complex poster of unusual size.

Only twice before has *Design Quarterly* offered the entire contents to one designer, says editor Mildred Freidman. "We have all seen so many utterly trite uses of the computer in graphic design. April, on the other hand, is one of the few designers creating prophetic work."

Greiman's style stems from her exposure to the Swiss school of pure design combined with a strong West Coast influence.

"Los Angeles," Greiman says, "changed all my feelings about color and light."

Greiman's style was not the only thing that challenged her audience and peers. Her use of modern technology was equally unprecedented. "I wanted to add more, not less, to my images," she says. "The computer is a revolution. It offers the power to create new visual languages — hybrids of design. You spend a lot less time doing and a lot more time looking. You can see things that were literally impossible before the computer. Despite people's fears about the loss of human imagination, it actually stretches our potential and allows us to encounter chance. Accidents happen that open new doors."

"Hybrid imagery" is a combination of technoligies, such as MacDraw-generated images and photographs manipulated in Paintbox, a video graphics system by Quantel.

In "Does it make sense?" Greiman explains the difficult process of breaking new ground in graphics with MacDraw and her Mac.

"For six months I gathered materials; for three months I sketched with MacPaint and digitized images with MacVision. For another three months I composed layered, and stretched with MacDraw and finally produced this piece on my LaserWriter. In the middle of the process, it seemed we were perfectly matched; my ideas and the ease and speed of the software. It enabled an extraordinary fluidity in a complex creative process. It made it possible to place and layer in new imagery and text until it became unable to handle all the information."

Tricking the software

Unfortunately, the further Greiman pushed the technology, the harder the technology pushed back. System errors kept popping up, making it impossible to print out the final image.

"My absolute genius assistant, Ron Romero, finally tricked the software into printing out, helping me to create the original digitized images." At least until the final printout, with one half of Greiman's body teleported into Plutonian orbit.

Still, she remains optimistic; the glitch will be tracked down and defused. In the meantime, she has plenty to keep her mind off grim thoughts of computer disaster.

Greiman maintains a roster of eight mostly high-visibility clients, plus two or three additional jobs per month. Also, she lectures quite a bit, sharing her vision with others.

Choosing to let her design speak for itself, she speaks sparingly at her seminars.

"April doesn't want to tell people what to think of her images," says Todd Hays, her public relations man and business representative. "She just wants them to react."

Her slide presentation, which lasts about 40 minutes, uses jazz, rock, folk, and Asian music, meshed with the sounds of birds and Greiman's own soft voice, in a sound collage. At receptions after her presentations, Greiman is available to answer questions and discuss her work.

Fluent in three cultures

Greiman and her husband, Eric Martin, an educator and designer, also have a computer consulting business on the side.

"Because of April's fluency with graphics software, the bulk of their clients are in the design field," says Hays. "But they have set up business offices with the Mac as well."

Greiman's Swiss/European roots in pure design, added to the new wave in design from Los Angeles, seem to have melded perfectly with Macintosh technology. Before her immersion into computer design, Colin Forbes, principal designer at Pentagram in New York, had described Greiman's approach as "an extraordinary assimilation of two different cultures, the classical European and the experimental Californian."

Now, with the Macintosh, she is using three cultures. ■

VISIBLE RESULTS

Few desktop-publishing projects consist of text alone — but even with a Macintosh, adding good art to your prose is not as easy as you might like. Despite the Mac's reputation as a graphics-based computer, it is still a long way from graphics-based to graphic arts.

Much of it is not the Mac's fault, of course. For any computer there is a major leap between image and data pattern, between the essentially analog graphic arts world and the digital representation inside the computer.

Steve Rosenthal

The problem is that the computer can work only with the digital representation, but what we want is the analog image. If the translation between the two is not sufficiently close, we are either working with the wrong data or seeing a result that appears low in quality.

On the Mac, there are really two different types of digital graphics: bit-mapped and vector. The bit-mapped type is the one produced by paint programs or by reading in an image through a scanner — such as what you create in MacPaint or what you get with the ThunderScan. The vector type is produced by draw programs, like MacDraw or MacDraft, and by a few of the newer illustration programs, such as Cricket Draw or Adobe Illustrator.

Unfortunately, even talking about the differences can get confusing. We often say we "draw" with MacPaint, but we are really creating paint-type, bit-mapped images. To further confuse the issue, Apple gave to draw-type documents only a resource (Macintosh internal code) name of "PICT," but not all Macintosh pictures are these draw-type vector images.

In desktop publishing so far, paint-type, bit-mapped images have been the most common. This type is simpler to create and easy to manipulate, and the programs needed to handle them are easier to write. But bit-mapped images are far from ideal. For a start, bit-mapped images are just patterns of colored and blank dots — black-and-white dots in most cases on the Mac. Such images are limited in resolution to the density of their defining bit map. No matter how good an input or output device you use, you cannot get any image more exact than the bit map provides.

In other words, a 72-dpi bit-mapped image created by MacPaint will never be better than 72 dpi, even if printed by a Linotronic 300 series typesetter that can create more than 2,000 dpi. The Mac can do some smoothing by predicting where extra dots would go, but only at some cost to the original precision and sharpness. Furthermore, you can lose even the limited resolution of the bit-mapped image if you resize it to a smaller size or distort it in ways that cause rounding errors in bit positions to accumulate. (The on-screen resizing done by most desktop-publishing programs is done with a copy of the bit-mapped image rather than the original so no information is lost.) You even get those rounding errors when going from a low resolution to a higher if the higher is not an exact multiple, and few typesetting systems are multiples of the two common Mac values of 72 dpi or 300 dpi.

Whether in original or distorted form, bit-mapped images of any significant size are memory hogs: at 300 dpi, an 8-by-10-inch monochrome image takes about 900 Kbytes of storage, color about 3.5 Mbytes.

Then there is the question of gray scale. In photography, in some art and in our direct observation of the world, objects are rarely completely black or white. Instead, there is a range of intensities. Traditional printing represents grays both by mixing in various patterns of black and white dots and by changing the dot sizes. On the computer, all dots are the same size, so to represent those gradations, you need more patterns. If you want a comparable range to printed matter, you need to simulate about 64 shades of gray, which takes six times as many bits as dots — to represent 64 in binary, you need six bits.

Even with a multimegabyte Mac II, you can run out of image space quickly. If you had a 32-page newsletter with 10 quarter-page black-and-white photos and one half-page full-color image, you'd need about 55 Mbytes of storage just for the illustrations.

This means that if you use paint-type images, you must limit their size and number and settle for resolutions in the 72-dpi range created by MacPaint, rather than the 300 dpi you get with SuperPaint or most scanners.

However, there are alternatives, which will be discussed in next week's column. ■

"MacWEEK generates immediate response for MacCalc."

Richard Ross
Bravo Technologies, Inc.

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When MacWEEK helped redesign MacCalc's ad, Bravo Technologies' president Rick Ross had reason to dance in the streets.

"The layout you created was stunning and high-impact," said Ross. "And the market seems to agree. A Midwest dealer phoned to order MacCalc as a direct result of our new ad in MacWEEK."

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This week, more than 50,000 corporate and other volume users of Macintosh computers will be turning to MacWEEK for the very latest news, objective product reviews and informative features on how other business users harness workstation technology.

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Business clicks with

MacWEEK

A/E/C

Continued from Page 1

show — targeted to architects, engineers and construction professionals — by claiming not to be pursuing narrow vertical markets.

This year Apple skipped COMDEX and joined A/E/C. Meanwhile, attendance has been slipping at general shows such as the National Computer Conference and significantly increasing at A/E/C and machine-specific shows like Macworld Expo.

"Attendees are more sophisticated now," says Borkovich. "They want to visit a product exhibit staffed by A/E professionals who understand their problems, rather than general marketing specialists."

Although Mac usage is small in the A/E market, Mac enthusiasts are encouraged by the introduction of the Mac II and new CAD products, and by the fact that new MS-DOS systems are emulating the Mac's user interface.

Previous A/E/C show participants have taken note of Apple's absence. A post-show survey of some of the 19,000 attendees last year indicated Apple was the vendor 28 percent most wanted to see added to the exhibit rolls. In 1985, Apple was the "most missed vendor" by 41 percent of those surveyed.

"Apple made a big mistake ignoring the construction industry," in the view of Harry Mileaf, a vice president in the Construction Information Group of McGraw-Hill. "Like most markets, architects follow their peers, so Apple will have to make up for a lot of lost time."

Apple's stated strategy is to coexist with the installed base of existing products by making it possible to integrate with minicomputers, mainframes and MS-DOS and UNIX machines.

In the desktop-engineering market, that strategy includes encouraging third-parties to develop a broader, more sophisticated range of software and hardware products and to train dealers to provide better support for professional and technical end users. Observors note that Apple must be perceived as taking an active role in a market it has long neglected.

Apple's lack of participation at A/E/C in past years was especially significant given the Apple II's dominance for data processing in the A/E microcomputer industry in the early 1980s. Following IBM's strong showing at A/E/C in 1985 — and Apple's absence — developers began porting Apple applications to the PC.

"People don't like to switch computers unless they're forced to," observes Borkovich. "And they were by the lack of an Apple CAD strategy."

Many of the more than 1 million installed Macintoshes sit on the desktops of technical professionals. Some observors say they believe the introduction of the more powerful Macintosh II may give Apple the sheer numbers to compete with the less prevalent minicomputer workstations. But the question is whether construction professionals will switch computer systems again — not by being forced away from the IBM standard, but by being attracted to the uniqueness of the Macintosh. ■

AATrix releases payroll, job invoice programs

BY CLAIR WHITMER
MacWeek Staff

GRAND FORKS, N.D. — Macintosh users are not going to get paid any better, but two new accounting programs from AATrix Software may help them keep better track of their salaries.

The AATrix Payroll program is designed to help with the accounting and bookkeeping of generating paychecks.

It creates reports, calculates FICA, makes adjustments for insurance and miscellaneous withholdings and calculates gross amounts. The program is compatible with all Macintosh computers with at least 512 Kbytes of RAM. The AATrix Payroll program will be available for $59 until Sept. 1, when the price will be increased to $79.

A second program, called TimeMinder, provides a computer-use meter so users can invoice the work they do on their Macintoshes.

It also includes an accounting system and a project time log so productivity can be measured in terms of the time required to complete jobs.

TimeMinder is available for $89.95 until Sept. 1, when it will be priced at $129.95. A $20 demonstration disk also is available.

TimeMinder is not compatible with the Macintosh II.

AATrix Software is at 405 Bruce Ave., P.O. Box 217, Grand Forks, N.D. 58201. ■

Apple tells SE users to upgrade to SC Setup 1.4

CUPERTINO, Calif. — Apple Computer Inc. recently released an alert bulletin over AppleLink, recommending that Macintosh SE users upgrade to hard-disk SC Setup Version 1.4 to avoid a potential loss of data.

Although Apple had reported earlier that Version 1.3 of HD SC Setup would solve hard-disk initialization failures, it discovered that Version 1.3 itself may cause data loss with certain machines.

The problem is because of a configuration of the hard drive and the system software.

According to the bulletin, only SEs with serial numbers starting with F721, F722 or F723 are affected; machines with serial numbers of F724 or greater are reportedly compatible with Version 1.3.

However, it was recommended to dealers that all machines brought in for servicing be updated or reinitialized with Version 1.4, available in the Software Updates folder on AppleLink.

The software will also be mailed directly to dealers. ■

FORUM

Continued from Page 1

ously absent at this year's forum. "We were not invited this year. But we don't know why," says Dan Buck, national sales manager for Microtek of Gardena, Calif.

After first being invited, Ann Arbor Softworks Inc. of Newberry Park, Calif., was told near the end of May that it might not be welcome. On June 5, John Scull, Apple's marketing manager for desktop publishing, called to confirm the "disinvitation". The Business Forum began in mid-June.

"After being invited, the selection criteria was restructured at the last minute," says Mark Marlow, business manager for Ann Arbor. "We strongly feel that the selection process excluded us, while allowing others in." The reason it was given was that the company was not shipping FullWrite by June 1.

Tangent Technologies, a software networking company, was invited, but after consideration, it declined. "Some things haven't developed in the Apple arena," says Roland Bates, president of the Norcross, Ga.-based company. "Apple has moved much slower on products it announced in March than we anticipated.

"We were told they were moving quicker. It has left us perplexed," he says. "We haven't seen a good sense of a marketing plan. It was a business decision for us to hold on (not aggressively market) products that are dependent on Apple. This is why we finally decided not to attend the forum."

The products developed by Tangent Technologies currently "on hold" are: TangentShare, which makes the IBM PC a client to the AppleShare file server, and PS Print, software that enables IBM PC users to utilize LaserWriter printers.

Ostensibly the changes in requirements were that companies would not be included if they had not shipped by June 1. But 4th Dimension, developed by Guy Kawasaki's company, ACIUS Inc. of Cupertino, Calif., has not shipped, but the company was invited.

The review process went through four revisions, according to sources who asked to remain anonymous.

Another source close to Apple says, "It was no single thing, rather it has been a bunch of minor things that gives [developers] a feeling of internal turmoil at Apple," that things are "up in the air, in limbo."

Several sources say that a power struggle within Apple is the reason behind the exclusion of certain companies.

Apple's response has been that there is no official endorsement attached to those invited to the business forum. "We can't exactly take 3,400 companies with us on the road," said Cynthia Macon, business market and public relations coordinator. ■

INTERLEAF

Continued from Page 1

the IBM PC-RT, Apollo, DEC and Sun workstations. The firm is considering expanding its range of compatible machines, according to David Boucher, Interleaf's president. "We're definitely interested in the Mac II."

He refused to confirm that this interest would translate into a product for the Mac II, but he did say there would be an announcement by the end of 1987. At that time, Interleaf will officially announce which personal computers it wants to support. One reason Boucher is reluctant to comment is the fear generated in the industry by "vaporware" accusations from users and the media. Aldus' delay in shipping the PC version of PageMaker is an example.

"We're not going to specify anything until we know exactly what we want to support: the pricing, delivery date, all of those issues," says Boucher. "If I knew exactly what we're going to do, I'd say, 'I don't want to make it on anyone's vaporware list.'"

But the word has reached the ears of people outside of Interleaf. Two sources from a major Macintosh software developer, who did not want to be named, say that Interleaf is definitely working on a Mac II version of its publishing software. If so, this project would provide head-on competition with the same system for Sun's machines, particularly the Sun 3/50, which is base-priced at $4,995.

"They are targeting more than one major personal computer platform, and I assume that includes Apple," says Robert Herwick, an industry analyst with Hambrecht and Quist in New York. ■

CNN

Continued from Page 1

sional hearings and from newspaper and magazine investigations into the affair that is filling the normally slow summer news hole in the nation's capital.

Cross-references between entries and the ability to search the chronology and biographies by key word have endeared the Macintosh and FileMaker to CNN journalists attempting to explain to viewers the affair's complex interconnections. Correspondents and producers typically carry an updated 300-page hard-copy printout of the FileMaker documents with them when covering hearings-related stories on Capitol Hill. Other copies of the database are mailed to CNN headquarters in Atlanta and are telecommunicated to CNN news bureaus across the country.

A Macintosh and hard disk were reserved for recording the affair after the database exceeded the storage available on three 800-Kbyte disks even before the hearings began. In the spirit of cooperation and accuracy, CNN reporters frequently exchange their database with other journalists in the Senate press gallery to make sure they do not miss any relevant details. "We chose the Mac for its user-friendliness," according to Marjorie Reimold, one of the information coordinators at CNN. "We couldn't perform the coverage without it."

So, if you want to learn the name of a good congressional hearing lawyer to hire or the name of an account manager at Credit Suisse to open a numbered bank account, stay tuned to CNN and its Macintosh-based coverage of U.S. political history. ■

We dare you to compare

Creative Strategies' survey data of MacWEEK readers with any other Macintosh magazine:

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82% use hard disk drives
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MAC THE KNIFE

Coming from the electronic mist straight to MacWEEK's Ministry of Telecommunication, it's the Ol' Knife. Are you ready for a download, Emily?

"Fire when ready, Mackie," types the maid of the keyboard. "Any chance you can do better than last week?"

You're appropriately demanding, dear lady. Here with some bits and pieces of gossip and grins. Seems a West Coast ad salesman for a major IBM-type weekly tabloid called on a kingpin peripheral mfg'r last week. The salesman's desktop presentation was real slick — all done on a Macintosh.

"Couldn't believe what I was seeing," sez the client. The Knife, he believes.

The aforementioned client wasn't as surprised as the good folks at ACIUS — you know, 4th Dimension. Word has it Blyth Software President Michael Kenny — "Omnis" ring a bell? — and his new marketing director dropped into the former's offices recently "to see how they were doing." The Knife loves a kidder, boy, oh boy.

Also from ACIUS, folks keep mumbling, will be ACI Writer Plus. Like 4-D, French is its mother tongue, and it still has some bugs. The French version is heavily copy-protected, but a larger problem is its inability to import or export to other formats such as Word 3 or MacWrite.

In other foreign climes, a large Italian software company has stopped writing its programs in Italian or translating English programs to French and Italian. Seems the rate of technological change is such that the firm is now writing everything in English to be sold in all the European markets.

The Knife, of course, is committed to German software, which may be an oxymoron.

Emily, remember what I told you a few weeks back about "Malibu," a portable-Mac-in-the-works in Apple-landia? A bloke relays that certain Apple developers have been seeded with the hi-powered beach bunny. Might be just the right graduation present for the college kids to take to Fort Lauderdale or Palm Springs next Easter break.

As to developers' relationships, The Knife gets it that the Apple folks would rather not hear from developers — by phone, that is. "Speak to us only with thine AppleLink," is the phrase from Cupertino. Rationale: It makes the developing lads and lasses "organize their questions instead of getting on the phone and rambling." Makes sense to The Knife, who's a telecom kinda guy in his heart of hearts.

From out of the region of the great Salt Lake comes a bit — stronger than a rumor, this time — that one of the major communications systems players is getting ready to field an expansion team in the Apple-net league. "We really aren't prepared at this time to make any *formal* statement on any development for the Mac," says a Novell insider, "but, yes, we are doing something." The Knife prefers to keep things informal anyway.

And from farther south and west, Ann Arbor Softworks, the progenitor of FullWrite, has signed a letter of intent to buy marketing rights to a high-winding spreadsheet program claimed to go cell-to-cell with Excel.

Grab an item here: The business market push is so hot and heavy at Apple that an insider involved in the production of Apple manuals is instructed: "Change all references to 'AppleTalk'; make them 'BusinessTalk.' " Of course, something called "BusinessTalk" already exists — comes from GEISCO (read that "General Electric") — so businesses can set up private AppleLink-type communications systems with E-mail, bulletin boards and a database module. Could be just a coincidence, but …

More from down Apple Way. There are new versions of MacPaint, MacWrite, MacDraw and MacTerminal scheduled to hit the dealers by July 15. All models are to sing in harmony with Mac II, and the dealers will be asked to handle the upgrades for the folks at home and work. An original disk is required for admission to the store, but watch those disk copiers dance.

Not much need for counterfeiters in the British Isles, however, just dealers in hot Irish goods. Reportedly, a shipment of upwards of 50,000 —or is it 5,000 — new Apple ROMs disappeared in some Irish bog. Sounds like a too-high number to The Knife, but something's amiss. What seems more clear, and interesting, are reports that the Mac II production line in the old sod — designed to meet the growing European passion for things Macintosh — was up and running the same time as the state-side operation. Gives credence to reports that some screens have a greenish tinge.

Can't get an M-Two here, you say? Might be worth a quick hop over the pond.

***

Thy tip and thy MacWEEK mug will comfort thee. Send the first (MCI: "MactheKnife") and get the second. ■

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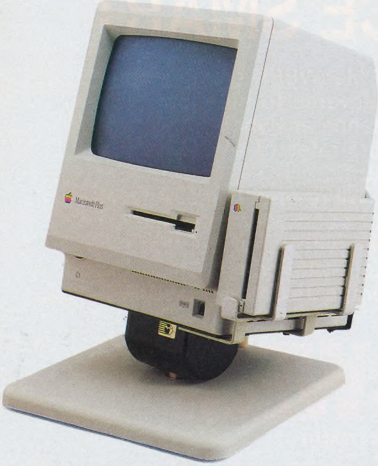

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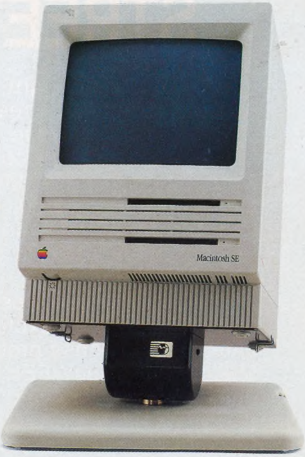

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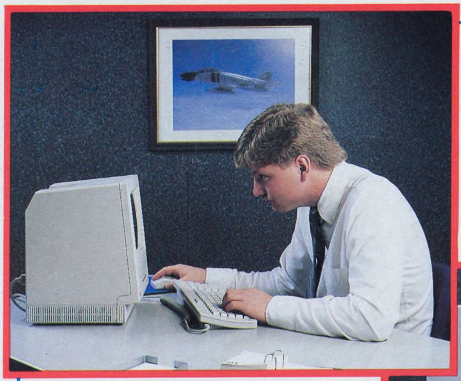

In business environments where operators spend long hours in front of their computer, the Mac's small screen size and the low physical profile can cause physical discomfort and reduced productivity. A common solution to the low profile problem was to place the computer on top of a hard drive. This is no longer a solution for the Mac SE with its internal hard disk or the Mac Plus when used with a vertical hard drive or a file server.

Phone books, shoe boxes, and other creative ideas have been tried to bring the Mac up to eye level, but with little success.

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